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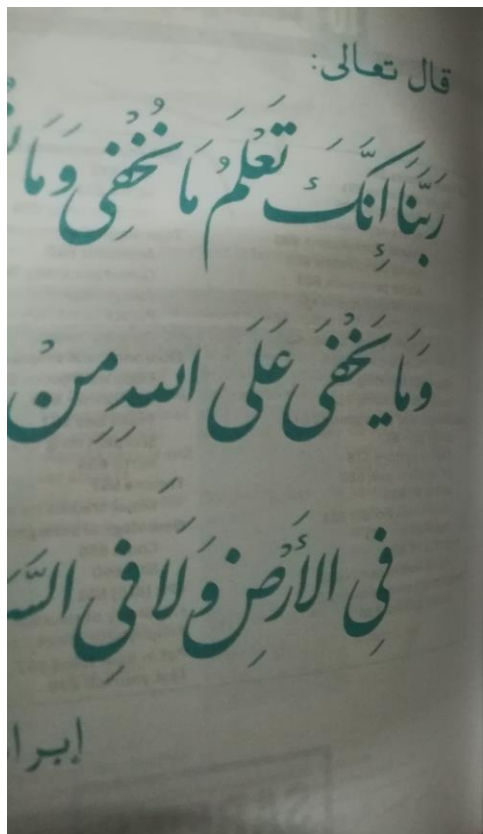
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GI emergencies

1. Acute abdomen

- Remember some simple rules
 - Take a proper Hx & examination: **Do not depend on the diagnosis given to you by the referring doctor**
 - Resuscitate** the patient properly and give adequate analgesia.
 - Try to **clarify if the patient has signs of peritonitis**.
- Your first priority is to identify patients requiring resuscitation or urgent treatment
 - See patients with shock
 - Patients with **hidden diagnosis** as ruptured AAA (see below)

Right hypochondrium - Right lower pneumonia - Cholecystitis - Biliary colic - Hepatitis	Epigastric - Pancreatitis - Gastritis - Peptic colic - Myocardial infarction	Left hypochondrium - Left lower lobe pneumonia - Large bowel obstruction
Right lumbar - Renal colic - Appendicitis	Umbilical - Small bowel obstruction - Intestinal ischemia - Aortic aneurysm - Gastroenteritis - Crohn's disease	Left lumbar - Renal colic - Large bowel obstruction
Right iliac - Appendicitis - Crohn's disease - Right tubo-ovarian pathology	Hypogastric (pelvic) - Cystitis - Urinary retention - Dysmenorrhea - Endometriosis	Left iliac - Sigmoid diverticulitis - Left tubo-ovarian pathology

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Medical acute abdomen

- IBS is the chief cause** (see GIT): so ask about episodes of pain associated with loose stools, relieved by defecation, bloating, and urgency (But **not blood**: this may be ulcerative colitis "UC")

Other causes

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> MI (epigastric pain) GE or UTI DKA Pneumonia Pneumococcal Peritonitis | <ul style="list-style-type: none"> Thyroid storm Herpes zoster TB Narcotic addiction Tabes dorsalis Malaria | <ul style="list-style-type: none"> Typhoid fever Cholera Lead colic Henoch-schönlein |
|---|---|--|

Hidden diagnoses

- Mesenteric ischemia
- Acute pancreatitis
- Leaking AAA

Finally: **always exclude pregnancy in females**

History

- Pain**: determine details of site, radiation, shift, character, timing, precipitating and relieving factors.
- Vomiting** (pancreatitis??, PU??, gastritis??, Intestinal obstruction??, DKA??)
- Bowel disturbance**: enquire about recent changes of bowel habit particularly any bleeding
- Other symptoms**: Do not forget that abdominal pain may be due to urological, respiratory, cardiovascular or gynaecological causes.
- Past Hx**: Determine the nature of previous surgery

if vomiting is **before** pain: often non-surgical cause
if vomiting is **after** pain: often surgical cause

Pain

- Constant pain, gradual in onset but progressively worsening suggests an **underlying inflammatory cause**
- Intermittent pain that is poorly localized suggests colic arising from a **visceral structure**
- Central and lower abdominal pain in children (under the age of 12) is self limiting (non specific) in 70%, from benign gynaecological causes in 25% (girls) and only pathological in 10-20%.

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- Severe pain out of proportion to the clinical signs suggests **ischemic bowel until proven otherwise**
- Pain in the loin or back arises from (at least partially) retroperitoneal structure. **Consider pancreas, renal tract and abdominal aorta**

Investigations

Blood investigations are very rarely diagnostic

Serum **amylase** more than 3x normal maximum is very highly suggestive of acute pancreatitis.

Plain abdominal X-ray is very rarely diagnostic. But do it for intestinal obstruction

Always request CXR (Plain erect)

To exclude conditions above the diaphragm (e.g. Basal pneumonia) detect free abdominal air.

Abdominal Ultrasound

Reveals **gall stones, free peritoneal fluids, urinary stones, aortic aneurysm**. Appendix may be detected

ECG

Especially in patients aged >55ys who may be suffering from an atypical presentation of MI.

Pelvic U/S

Is a good test for suspected **tubo-ovarian disease**.

Abdominal x-rays

Specific indications include suspicion of **intestinal obstruction, toxic megacolon, sigmoid volvulus, GI perforation, urinary calculi**.

X-rays

Are **not indicated** in patients with suspected uncomplicated appendicitis, UTI, simple constipation, GE, GI bleeding, acute pancreatitis. They are not routinely indicated in the investigation of abdominal pain.

Blood-sugar

For **DKA**

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Signs

1. Tachycardia
2. Fever 37.5-38.5 °C
3. Furred tongue
4. Foetor oris ± flushing
5. Shallow breaths
6. Coughing hurts
7. Signs in the RIF
 - Guarding
 - Rebound + percussion tenderness
 - PR painful in the Rt.

Variations in the clinical picture

- The infant with watery diarrhea and vomiting
- The boy with vague abdominal pain who will not eat his favorite food.

Hints

- **Don't rely on test** e.g. WCC, CRP, urine analysis, CT (may cause fatal delay)
- If the child is anxious, use his hand to press his belly.
- **Do not start palpating RIF** as this may make it difficult to illicit pain elsewhere لا تبدأ الفحص من مكان الأم
- **Do not ignore Rt. sided tenderness on PR:** it may be the only sign.
- Expect your diagnosis to be wrong half the time

Special tests

1. **Rovsing's signs:** pain more in RIF than LIF when LIF is pressed.
2. Do vaginal examination in women: does she have **salpingitis** (+ve cervical excitation)
3. CT (if diagnosis unclear): reduces -ve appendectomy rate but may cause fatal delay

Differential diagnosis

- Ectopic pregnancy → do pregnancy test
- Mesenteric adenitis
- Cystitis
- Diverticulitis (called left appendix)
- Salpingitis/PID
- Dysmenorrhea
- Crohn's disease
- Perforated ulcer
- Food poisoning
- Meckel's diverticulum.

Treatment

1. Obtain IV access, start IV fluids if dehydrated.
2. Analgesia: iv morphine

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3. Anti-emetic: IV Metoclopramide 10mg R/PRIMPERAN AMP. slowly iv
4. If acute appendicitis is likely "Nil per mouth" & refer to surgeon.
5. US (pelvic) is indicated in young women of child bearing age if ovarian pathology is inspected.
6. Avoid giving IV antibiotics without a clear diagnosis.

For acute appendicitis (operation):

7. Appendectomy (open or laparoscopic)
8. Antibiotics
 - Metronidazole 500mg/8hr (R/FLAGYL) + Cefuroxime 1.5g/8hr (R/ZINNAT) 1 to 3 doses, starting 1hr preoperative.
 - Give longer course if perforated.
9. Laparoscopy is not recommended in cases of suspected gangrenous perforation, because the rate of abscess formation may be higher.

Complications of acute appendicitis

1. Perforation.
2. Appendix mass.
3. Appendix abscess

قواعد التعامل مع حالة الزائدة

1. حالة حادة بخص شديد في البطن
2. خذ بالك الزائدة بتبدأ peri-umbilical فممكن نكتكرها GE
3. ممكن بيبلك طفل يرجع
4. في الفحص ركن على rebound tenderness
5. لو كان WCC على مش شرط تكون زائدة
6. لو شخصها زائدة استدعي الجراح وأبدأ العلاج فوراً
7. أهم حاجة تعطي المسكن - مضاد الالتهاب
8. ممكن كمان تدعى مضاد للتقلصات
9. ثوب لو فيه جفاف وأبدأ إعالييل
10. طبعا أي حالة acute abdomen لازم تستبعد الجمل (ممكن يكون حمل خارج الرحم).

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3. Peptic Ulcer disease (perforation of gastric or duodenal ulcer) SGR

- Sudden localized **epigastric pain** spreads to the remainder of the abdomen.
- The pain is worse on coughing or moving and may radiate to the shoulder tip.
- The patient is distressed.
 - **Prefer to lie still** rather than to roll about.
 - However, some patients in extreme pain may roll in agony and are unable to keep still examination on X-rays until analgesics is given.
 - Absent bowel sounds, ± shock, generalized peritonitis and fever develops as time passes.
- **Investigations:**
 - **Erect CXR:** free gas under the diaphragm in ~ 75% of patients with perforated peptic ulceration.
 - If patient is not fit enough for an erect CXR, obtain left lateral decubitus X-ray.
 - If diagnosis is not proven by X-ray, contrast CT may help.
 - **Other investigations:**
 - U&E.
 - Glucose.
 - Amylase (may be slightly ↑).
 - CBC (WCC typically ↑).
 - SaO₂.
 - ABG.
 - ECG / troponin (Exclude MI).

N.B: in addition to perforation, PUD may also present with upper or lower GI hge or pain resulting from Oesophagitis, gastritis or duodenitis.

Treatment:

1. Give O₂.
2. IV analgesia (e.g. **Morphine** titrated according to response).
3. Give antiemetic (e.g. slow IV metoclopramide 10mg R/PRIMPERAN AMP.).
4. Resuscitate with IV 0.9% saline.
5. Insert a NG tube.
6. Refer to the surgeon and give IV Ab. (R/CEFOTAX 1GM) and in late presentation give Metronidazole 500mg as well (R/FLAGYL 500 IVI).

References

1. Oxford-emergency P 309.

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حالة قرحة معدية

1. جايك بألم شديد في قم المعدة (epigastric pain).
2. المريض يتلوى ألما ومش قادر يشام بيحب يفضل قاعد.
3. ممكن بيبلك المريض يشزيف من القم أو من الشرج.
4. لازم تستبعد ال MI لأن في أنواع منه بيتيجي epigastric.
5. وطبعاً لازم تستبعد التهاب البنكرياس فاعمل serum amylase.
6. طبعا حالة المريض ممكن جاية أصعب من كده في صورة generalized peritonitis و guarding وسخونية وضدمة.
7. أديله أكجين.
8. المسكن مهم جداً مورفين أفضل لأن ال NSAIDs هتزدود النزيف.
9. مضاد القي.
10. طبعا لو جاي يشزيف من القم هتركب رايل.
11. ولو جاي shocked هندی بحاليل ونتعامل مع الصدمة.

4. Acute pancreatitis SGR

Causes:

- Often d.t gall stones and alcohol.
- **Other causes:** trauma, steroids, **thiazides**, NSAIDs, hyperlipidemia, hypothermia, infection (glandular fever, mumps, hepatitis B).

Clinical features:

- **Severe epigastric pain radiating to the centre of the back**
- **Severe nausea and vomiting.**
- Fever, dehydration, hypotension, tachycardia.
- Epigastric tenderness associated with **guarding** and in severe cases, **rigidity**, which may be generalized.
- In haemorrhagic there is left flank echymosis (Grey-Turner's sign) and peri-umbilical echymosis (Cullen's sign).
- The patient may be distressed, sweating.

Investigations:

- Check blood glucose & SaO₂ (by ABG)
- **Serum amylase:** > 1000 U is diagnostic, but may be normal even in severe cases. Elevated amylase may occur in wide range of other acute abdominal events (intestinal ischemia, leaking aneurysm, perforated ulcer, cholecystitis)

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- CBC: my reveal ↑ WCC.
- U & E, Ca²⁺, LFT, hypocalcaemia is relatively common.
- Coagulation.
- CXR, ECG, ABG.

Treatment:

1. Provide O₂
2. Establish large caliber IV access. Give crystalloid fluid up to 1000ml
3. Give analgesia (**morphine** titrated according to response)
4. Give an antiemetic (metoclopramide "**Primperan 10**" slow IV)
5. Insert an NG tube
6. Insert a **urinary catheter** & monitor urine output.
7. Consider early inspection of a **central venous line** to monitor the CVP & guide IV fluids
8. Contact the appropriate specialist(s) & refer to ICU

References

1. Oxford-emergency: p506
2. Oxford-surgery: p316,317

حالة التهاب في البنكرياس

1. مريض جئ بمرض شديد في فم المعدة ويسبغ في ظهره من وراء.
2. يورجج باستمرار.
3. يمكن ييجي بسخونية وانخفاض في الضغط (في الغالب shocked) و زيادة في ضربات القلب.
4. عمل serum amylase واسحب غازات وصورة دم ويوريا وكرياتين.
5. خذ بلك ممكن تكون التهاب في البنكرياس وال serum amylase يكون طبيعى.
6. ادى اكسجين 100٪ بس حاسب لو كان COPD رظبطه على 92-88٪.
7. ادى محاليل 1000 سم.
8. طلبا المورفين ومضاد القي.
9. ركب قسطرة بول.
10. لو بتعرف تركب CVP ركبها.
11. استدعى الجراح وحول بسرعة للعناية.

5. Acute peritonitis DxR

- Defined as acute inflammation on the peritoneal cavity.

Causes:

- A. Primary: staph. entering blood stream.

B. Secondary:

- Acute perforated **appendicitis**: the commonest cause.
- Acute perforated diverticular disease.
- **Upper GI perforation**.
- Peritoneal dialysis related.
- Others.

Symptoms:

- Anorexia and fever.
- **Severe generalized abdominal pain radiating to shoulders and back**.
- Abdominal pain worse with movement, coughing, sneezing.

Sign:

- Fever, tachycardia.
- Generalized abdominal tenderness with **guarding and rigidity**.
- Differential maximal tenderness may indicate the possible underlying cause.
- Gentle palpation may allow identification of an underlying mass.

Management:

1. Establish large caliber IV access.
2. **Catheterize** & place on a **fluid chart** if hypotensive.
3. Send blood for CBC (Hb, wcc), U&E (Na, K) CRP, and blood group.
4. IV **antibiotics** are appropriate with a clear diagnosis, especially if surgery is like (e.g. Metronidazole 500mg IV t.d.s + Cefuroxime 750mg IV t.d.s).

Establish diagnosis by:

1. Abdominal CT, U/S, AXR, serum amylase.
2. Definitive treatment: treat the cause if you found it.

Reference:

1. Oxford-surgery: P 286, 287.

حالة التهاب بريتونس

1. ألم شديد في البطن كئنها.
2. البطن رى الجحر.
3. آلام ييسغ في الظهر ولاكتدر.
4. سخونية وورقة في القلب.
5. هتلق محاليل الم الضغط منخفض.
6. ركب قسطرة بول.
7. اطلب صورة دم كاملة وضوديوم ويوناسيوم وفصيلة.
8. مضادات حيوية.
9. استدعى الجراح.

6. Acute cholecystitis DxR

- There is history of **gallstones** impaction with inflammation of the gall bladder.

Symptoms:

- Rt. hypochondrial pain radiating to the Rt. side of the back + vomiting.

Signs:

- Fever.
- RT hypochondrial tenderness (particularly felt on inspiration: **Murphy's sign**).
- There may be a palpable **mass**: this is also a feature of mucocele and empyema (causes high fever, extreme tenderness, and septic shock).

Management:

1. IV analgesia + Antiemetic. (R/OLFEN AMP, IM + R/PRIMPERAN AMP. IV OR R/CORTISEN B6 AMP IM)
2. Check CBC (WCC often ↑) U&E, glucose, Amylase, LFTs.
3. CXR.
4. ECG (to exclude MI).
5. U/S will confirm the diagnosis: tenderness over a thickened gall bladder containing stones.
6. Give **R/CEFOTAX 16 IV** and refer to surgeon.

References

1. Oxford-emergency P 508.

حالة التهاب حاد في المرأة

1. جايك بال شديد تحت صدره اليمين.
2. الوجع مسج في كتفه اليمين وضهره من ناحية اليمين برضه.
3. ممكن يكون يورجج او مسخن.
4. ألم عند الفحص.
5. ممكن يكون في صدمة . تعامل معاها.
6. اوبله اليرمان والاوفلين والسيون تاكس واستدعى تايب الجراحة.

7. Intestinal obstruction DxR

- May be mechanical or paralytic.

Cause of mechanical obstructions.

1. Adhesions after previous surgery.
2. Obstructed hernia.
3. Tumors (gastric, pancreatic or large intestine carcinoma).
4. Volvulus (gastric, caecal or most commonly sigmoid).
5. Inflammatory mass (diverticular, Crohn's).
6. Peptic ulcer disease.
7. Gall stone ileus.
8. Intussusceptions.

History:

- **Classic symptoms**: abdominal pain, distension, vomiting and constipation.
- The exact presentation depends on the site.
- Ask about previous surgery.
- A history of severe pain suggests strangulation and developing ischemia in a closed loop.

Examination:

- Check T°.
- Look for evidence of **dehydration** and **shock**.
- Carefully examine the **hernial orifices**.
- Inspect for **scars** from old surgery.
- Note any **distension** & areas of tenderness (peritonitis??).
- Bowel sounds may be tinkling or absent.
- PR examination may reveal an **empty rectum**.

Investigations:

- **CXR**, erect and supine abdominal XR: may show distended loops of bowel (with **multiple fluid levels** visible on an erect abdominal view).

Management:

1. If the patient is shocked, **resuscitate with O₂ & IV fluids**. Insert a **urinary catheter**.
2. Consider need to insert a central venous line to guide resuscitation and involve in for ICU specialists at early stage.
3. Give IV analgesia (e.g. IV **morphine**: titrate according to the response).
- 4.
5. Give antiemetic (e.g. metoclopramide 10mg slow IV) R/Primperan 10 amp.
6. Insert a NGT.
7. Refer to the surgical team and insure that the anaesthetist is informed.

References:

1. Oxford-emergency: p 510, 511.

حالة انسداد معوي

1. اسع بطنته ممكن متلافش اي صوت
 2. ممكن العيان يكون في صدمة
 3. اسأل عن البراز، في الغالب العيان ده مجاش برزاز من مدة اعمله PR
 4. متلاقى المستقيم فاضي في الغالب
 5. يا ترى عامل جراحة قريب وعملت adhesions
 6. يا ترى عنده فتق، والتفتق (strangulated hernia)
6. لو شكيت اعمله abdominal x-ray erect واعمله يوتاسيوم وعشان ال paralytic ileus، وابعت لشايب الجراحة.

8. Mesenteric ischemia / infarction D&R

- Acute mesenteric infarction.

Pathophysiology.

- Mesenteric arterial thrombosis.
- Arterial embolism.
- Venous thrombosis.
- Mesenteric blood flow (e.g. hypotension secondary to MI).

History:

- **Severe, sudden onset, diffuse abdominal pain.**
- The pain may radiate to the back.
- There is often associated **history of vascular disease** elsewhere (e.g. intermittent claudications).

Examination:

- **Shock, absent bowel sounds**, abdominal distension & tenderness are late signs.
- If the diagnosis is suspected, search carefully for evidence of an **embolic source** (e.g. AF, recent MI with risk of mural thrombus, Aortic valve disease or valve prosthesis).

Investigations:

- X-rays may show: **non-specific dilatation of bowel loops** and in advanced cases gas within the hepatic portal venous systems.
- U&E, glucose.
- Amylase may moderately increase.
- CBC may show ↑↑ WCC.
- Coagulation profile.
- Blood grouping & save.
- **ABG**: typically reveals a **severe metabolic acidosis**.
- ECG: may demonstrate AF.

Management:

1. Resuscitate with O₂ and IV fluids.
2. Analgesia (IV **morphine** titrated according to response).
3. Broad spectrum Ab (e.g. **R/CEFOTAX 16M IV**).
4. **Refer urgently to the surgeon.**

References:

1. Oxford-emergency P 512.

MVO
Diffuse pain
Shock
Absent bowel sounds

9. Rupture abdominal aortic aneurysm (AAA) D&R

- Relatively common & **responsible for a large number of deaths**.
- The patient's chance of survival lies with early diagnosis, prompt resuscitation & rapid transfer to the theatre.
- **Hge after rupture** is usually into the retro-peritoneum.

History:

- Presentation is highly variable ranging from **pulseless electrical activity cardiac arrest** to **painless sudden collapse** of obscure origin; through a classical history of **central abdominal and lower back pain** in a patient with **known aneurysm**.

Examination & investigations:

- Distressed, sweating, tachycardiac & hypotensive with mottled (منقط) skin of the lower body & **tender pulsatile abdominal mass**.
- **One or both femoral pulses are absent**.
- Confirmatory investigations (US or CT).
- It may be safer & quicker to perform U/S in the ED.
- Adopt a threshold of suspicion in middle aged, or elderly patient who presents with **back pain, abdominal pain or collapse**.
- If obese & you can't detect pulsatile abd. mass assume (افترض) that the problem is ruptured AAA
- Start resuscitation.

Management:

1. Give high flow O₂.
2. Obtain venous access with 2 large bore venous cannulae.
3. Send blood for (CBC, U&E, Glucose, baseline coagulation, screen, LFTs and emergency X-matching (**10 units red cells + 2 units platelets**)).
4. Analgesia (IV morphine titrated).
5. Antiemetic.

2. Upper G.I bleeding S&R

- A. **Haematemesis**: is vomiting of blood usually due to bleeding proximal to the duodeno-jejunal junction.

- B. **Melena**: is the passage of altered blood (dark purple, pitch black "tarry") usually due to bleeding below the gastro-oesophageal junction.

Causes and features:

1. **Peptic "gastric or duodenal" ulceration**:

- Fresh red blood with clots occasionally mixed with food.

2. **Oesophageal varices**:

- Copious dark red venous blood with little mixing with food
- Features of portal hypertension "e.g. caput medusa".

3. **Oesophageal ulceration**:

- Small volumes of bright red blood streaks.
- Oesophageal trauma "**Mallory-Weiss tear**".
- Small volumes of fresh bright blood preceded by violent or prolonged vomiting.

4. **Gastric carcinoma**.

5. **Coagulation disorders** or anticoagulants.

6. **Drugs as NSAIDs**.

History:

Ask about:

- Amount and duration.
- Past hx of gastrointestinal bleeding or liver problems.
- Associated symptoms (abdominal pain, weight loss, anaemia).
- Drug hx (aspirin, NSAIDs, warfarin, iron)
- Alcohol consumption.

N.B take a detailed history, but remember that **resuscitation takes priority**.

■ Examination & investigations:

- Check ABG.
- **Rapidly assess for hypovolemic shock:**
 - Cool and clammy to touch (especially, nose, toes, fingers) decrease capillary refill.
 - Pulse >100 bpm.
 - Systolic blood pressure <100mmHg.
 - Urine output <30ml/hour.
- Check RR, BP, GCS, skin color, temperature.
- Look at any available vomit or faeces.
- Check for abdominal masses, tenderness or surgical scars (including aortic grafting).
- Look for stigmata of liver disease.
- Perform of PR and check for FOB (fecal occult blood).

■ Management:

A. Mild hemorrhage:

1. Check airway, breathing and provide high flow O₂ by face mask.
2. Insert 2 large (14G) IV cannulae and send CBC, urea, electrolytes, blood grouping, cross matching, clotting profile and L.F.Ts (albumin).
3. Start slow IV fluid to keep the cannulae open.
4. Give omeprazole (40mg diluted in 100ml saline as IVI over 30 minutes) if known peptic ulcer.

R/RISC 40 (INFUSION)

5. ركب رايك عشان تتأكد انه نزيف فعلا ومصدره من الـ GIT

B. Moderate/severe hemorrhage:

1. Oxygen by face mask.
2. 2 large cannulae.
3. Send an urgent X-match for 4-6 units of blood.
4. Start IVI 0.9% saline 1000ml followed by blood as necessary (your target is HB 8-10g/dl).
5. Insert a urinary catheter and monitor urine output.
6. Call the endoscopic, surgical team and anesthetist/ICU staff.
7. Once fluid replacement has commenced, consider inserting a **central venous line** so that subsequent fluid replacements can be guided by CVP.
8. Ensure that the airway is open especially in patients with **severe uncontrolled variceal bleeding**, severe encephalopathy, hypoxia, acute agitation or evidence of aspiration.

C. Managing severe hemorrhage possibly due to varices:

Arrange emergency endoscopy and endoscopic treatment while you are doing the following:

1. Give vasopressin (20 units IV over 15 minutes) + GTN infusion or terlipressin (2mg IV repeated every 4-6 hours). R/SANDOSTATIN
2. If experienced in the technique: insert a 4 lumen **sen-gastaken/Minnesota** tube inferior to the gastric balloon then the oesophageal balloon to a pressure of about 30-40mmHg to tamponade the bleeding varices. Regularly aspirate the oesophageal and gastric parts; this may stop bleeding in 90% of cases.
3. Consider ciprofloxacin or second/third generation cephalosporins which may decrease mortality in severe variceal bleeding.

Reference:

1. Oxford handbook of emergency medicine: page 122, 123.
2. Oxford handbook of clinical surgery: page 280, 281.
3. OHCM: page 804, 805.

3. Lower G.I bleeding 54R

■ Causes:

- The commonest cause of apparent lower G.I bleeding is upper G.I hemorrhage.
- Angiodysplasia (colon) and bleeding from diverticulae.
- **Inflammatory bowel disease:**
 - Lower G.I bleeding often settles spontaneously.
 - Localization of the bleeding source may be difficult.

■ History:

1. Nature of the bleeding:

- Remember the melena may occur following small bowel or proximal colon bleeding as well as upper G.I bleeding.
- Large volumes of fresh rectal bleeding may actually follow upper G.I hemorrhage.
- Bloody diarrhea suggests inflammatory bowel disease or infectious colitis.

2. Associated symptoms:

- Weight loss, anorexia or change of bowel habits, suggest **colonic cancer**.
- Abdominal pain: may be feature of ischaemic colitis, IBD or carcinoma.
- Anal pain: commonly occurs with **anal fissure** or complication of **haemorrhoids**.
- Syncope or postural dizziness may indicate significant hemorrhage.

3. Past medical history:

Ask about:

- Peptic ulceration.
- IBD.
- Previous aortic surgery.

4. Drug history:

Ask about:

- Salicylates and NSAIDs.
- Corticosteroids and anticoagulants.

■ Examination:

- First assess for signs of hypovolemia (do resuscitation if necessary).
- Document pulse, BP (comparing erect and supine, noting any postural drop), temperature, SaO₂.
- Examine the abdomen and rectum in all cases.

■ Investigations:

- Obtain blood for x-matching (ask for 4-6 units if urgent).
- CBC, U&E, glucose and coagulation profile.
- Perform an ECG on any patient >50 years.

■ Treatment:

► Patients with signs of hypovolemia require immediate resuscitation:

1. Give **high flow oxygen**.
2. Attach monitoring (cardiac monitor, SaO₂, BP monitoring).
3. Insert 2 large IV cannulae.
4. Give 1 liter of 0.9% saline or Hartman's solution IV.
5. Insert a NGT.
6. Insert a **urinary catheter**.
7. Consider the need for a **central venous line**.
8. **Contact** the surgical team and anaesthetist.

Source of this topic:

1. Oxford handbook of emergency medicine page 124.

Cardiovascular emergencies

4. Chest pain D4R

- First exclude life threatening causes

Life threatening causes:

1. Acute myocardial infarction.
2. Angina/acute coronary syndrome.
3. Aortic dissection.
4. Tension pneumothorax.
5. Pulmonary embolism.
6. Oesophageal rupture.

Other causes

1. Pneumonia/chest infection.
2. Chest wall pain
3. Fracture rib
4. Bony metastases
5. Costo-chondritis
6. Gastro-oesophageal reflux
7. Oesophageal spasm.
8. Herpes zoster
9. Pericarditis
10. Intra-abdominal
11. Cholecystitis
12. Peptic ulceration
13. Pancreatitis

Analysis

1. Angina (ischemia)

- The patient usually describes the pain as "discomfort"

Pain:

- Retrosternal
- Crushing, heaviness, or like a tight band
- Worse with physical exertion, cold weather and after eating.
- Relieved by rest and nitrate spray (within 2 minutes)
- Not affected by respiration or movement.
- Sometimes associated with breathlessness.
- Patients classically **clench their Rt. fist and hold it to their chest** when describing the pain.

2. Myocardial infarction

- The pain is similar to that of angina but much more severe, persistent (despite nitrate spray) and associated with nausea and vomiting.

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- Patient may also describe a feeling of impending doom or death.

3. Pericarditis

- The commonest causes are viral or bacterial infection, MI, or uremia.

Pain:

- Constant retrosternal 'soreness'.
- Worse on inspiration (pleuritic)
- Relieved slightly by sitting forward.
- Not related to movement or exertion.

4. Oesophageal spasm

- Often mistaken for MI or angina.
- A severe retrosternal burning pain.
- **Onset:** often after eating or drinking.
- May be associated with dysphagia.
- May have a history of dyspepsia.
- May be relieved by GTN (nitrates) as this is a smooth muscle relaxant (hence the confusion with angina) but GTN will take up to 20 minutes to relieve this pain whereas angina is relieved within 2 minutes.

5. Gastro-oesophageal reflux disease ('heart burn')

- Retrosternal burning pain
- Relieved by antacids, onset after eating.

6. Dissecting aortic aneurysm

- Must be differentiated from MI **as thrombolysis here is fatal.**
- Severe tearing pain.
- Radiating posteriorly classically between the shoulder blades.
- Persistent, most severe at onset.
- Patient is usually hypertensive

7. Pleuritic (respiratory) pain: "see chest chapter"

- May be caused by a wide variety of respiratory conditions, particularly pulmonary embolism & pneumothorax.

Pain:

- Sharp pain, worse on inspiration and coughing.
- Not central: may be localized to one side of the chest
- No radiation

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STABLE ANGINA *

- Chest pain < 20 minutes.
- Relieved by sublingual nitrates or rest.
- No ST changes.
- No elevation of cardiac enzymes.

UNSTABLE ANGINA *

- Chest pain < 20 minutes.
- Not relieved by sublingual nitrates.
- No ST changes.
- No elevation of cardiac enzymes.

NSTEMI *

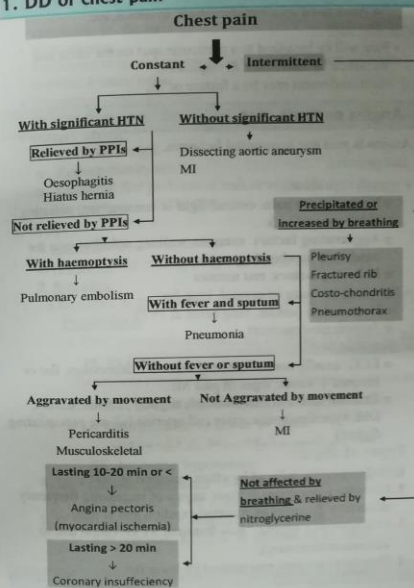
- Chest pain (usually prolonged > 60 minutes).
- Not relieved by sublingual nitrates.
- ST depression.
- Elevation of cardiac enzymes.

STEMI *

- Chest pain > 20 minutes.
- Not relieved by sublingual nitrates.
- Elevation of cardiac enzymes.
- ST elevation:
 - ST segment elevation of **1mm or more in 2 or more contiguous leads.**
 - In v1, v2:
 - In men: 2mm elevation is required.
 - In women 1.5mm elevation is required for adequate diagnosis.

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1. DD of chest pain



Source of the above figure:
Practice guidelines for family physicians volume 5 P. 38 وزارة الصحة المصرية

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- No relief with nitrates
- Associated with breathlessness, cyanosis, etc.

Muscular pain

- Pain will be localized to a particular spot on the chest and worsened by movement & respiration.

N.B: chest tenderness may be a feature of PE

2. Angina pectoris *سج*

- Angina is pain due myocardial ischemia.

Diagnosis:

- **History:** ask about
 - Nature of the pain: central, tight or constricting, radiating to the arms or neck.
 - Aggravating factors: exercise, walking uphill or into the wind, cold weather, large meals.
 - Relieving factors: rest nitrates
- **Examination:** may be normal, look for:
 - Heart failure (ankles, lung bases & JVP)
 - Arrhythmias/murmurs
- **Investigations**
 - ECG: usually normal but may show ST depression, flat or inverted T waves, signs of past MI.
 - Exclude: anaemia (may unmask angina), thyrotoxicosis, DM, hyperlipidaemia, giant cell arteritis (all are precipitating factors)

Types of angina

1. **Stable angina:** induced by effort, released by rest
2. **Unstable (crescendo) angina:** angina of increasing frequency or severity & occurs on minimal exertion and at rest.
3. **Prinzmetal's angina:** خادعة: transient ST elevation due to vasospasm (coronary).
4. **Decubitus angina:** precipitated by lying flat.

■ Treatment of stable angina : المريض لازم يتحجر

1. Alternation of life style:

- Stop smoking
- Encourage exercise: recommended at least 20 min. of brisk exercise 3 times/week
- Encourage stress reduction.
- Stop or decrease alcohol.
- **Dietary advice:**
 - Decrease weight
 - Reduce dietary fats
 - Consume five portions of fruit or vegetables per day

2. Modify risk factors: HTN, DM

3. Drugs :

1. **Aspirin:** 75-150mg/24 hrs.

2. **Atenolol:** 50-100mg/24 hrs. R/TENORMIN (50-100)

3. Nitrates:

◦ R/DINITRA 5, (ISOSORBIDE DINITRATE) UP TO EVERY ½ HR.

Prophylaxis:

◦ Give isosorbide mononitrate 10-30mg PO R/EFFOX 20, 25, 40, 60MG

To prevent recurrence كل ٨ ساعات على جرعة واحدة بدون ديثرات

◦ Or slow release nitrate R/IMDUR 60MG/24 HRS.

◦ Or R/NITRODERM PATCH 5 OR 10MG

لاصقة على الصدر توضع ١٦ ساعة وترفع ٨ ساعات

SE: headache, hypotension

4. **Ca²⁺ channel blockers:** Amlodipine 10mg/24 hrs R/NORVASC 10 OR R/ALKAPRESS 10 IXI

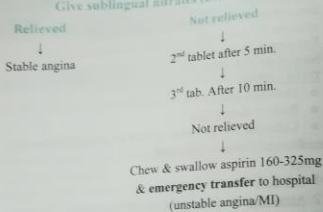
5. If total cholesterol > 4mmol/L give a **statin** Simvastatin: R/ZOCOR 10, 20, 40MG PO AT NIGHT

► Unstable angina requires admission and urgent treatment

References 1. GP: P 157 2. OHCM: P 102 3. Oxford-emergency: P 69

►► If patient is presenting with anginal pain

Give sublingual nitrates (Dinitra)



3. Acute coronary syndrome (ACS) *سج*

ACS includes:

1. Unstable angina.
2. Non-ST segment elevation MI
3. ST segment elevation MI "acute MI".

■ Acute myocardial infarction (acute MI) *سج*

Symptoms

- Acute **central chest pain** lasting > 20 min., **crushing**, tightness, radiating to the arms, shoulders, or neck and jaw.
- **Associated features:** nausea, dyspnea, sweatiness, palpitations.
- May present without pain "silent infarct": 1/3 of MI cases e.g. in elderly & diabetics.
- **In such patients presentations may include:** syncope, pulmonary oedema, epigastric pain & vomiting, post-operative hypotension or oliguria, acute confusional state, stroke, diabetic hyperglycemic states.

■ Signs:

- Distress, anxiety, pallor, sweatiness, pulse ↑ or ↓, BP ↓ or ↑.
- There may be **signs of HF**; a low grade fever may be present.
- ECG: ST elevation

■ Immediate management of suspected MI

1. Reassure the patient
2. Make sure that the ambulance has been called
3. Site an **IV cannula**
4. Give analgesia e.g. **Morphine 5-10 mg IV**
5. Give anti-emetic e.g. **Metoclopramide 10mg iv** not im because of risk of bleeding with thrombolysis
6. Give **Aspirin 325mg** unless contraindicated (e.g. active PU) أو : اقرا من اسبرين مضغ الآن

1. 300mg clopidogril

R/PLAVIX OR MYOGREL 75MG اقرا من بلافيكس الآن

1. Be prepared for the risk of **cardiac arrest**. Check BP & cardiac rhythm regularly.
2. Telephone the hospital to inform the medical team to be ready.
3. If there is time write a letter listing the time of onset of symptoms, drugs given & cardiac history.

■ In the hospital

1. Attach ECG monitor & **record a 12 lead ECG**
2. High flow **O₂ by face mask** (caution if COPD)
3. **IV access** (blood for CBC, U & electrolytes, glucose, lipids, cardiac enzymes)
4. **Brief assessment** *بسرعة*
 - History of CVD, risk factors for IHD
 - CI of thrombolysis? (see below)
 - **Examination:** pulse, BP, JVP, cardiac murmurs, signs of HF, peripheral pulses
5. **Aspirin 325mg** (unless already given by GP)

7. GTN sublingual 2 puffs or 1 tab as required
8. Thrombolysis (see later)
 - + Start LMWH (e.g. enoxaparin 1mg/kg iv immediately)
 - R/CLEXAN 80MG IV
9. β B e.g. Atenolol 5mg iv slowly (unless asthma or left ventricular failure) repeated once after 5 min.
10. CXR
11. Do not delay thrombolysis while waiting unless aneurysm suspected
12. Consider glucose, insulin, and potassium infusion for patients with diabetes mellitus
13. Consider DVT prophylaxis
14. Continue medication except calcium channel antagonists (unless specific indication)

Thrombolysis

1. Streptokinase

- It is the usual thrombolytic agent
- Dose: 1.5 million units in 100ml 0.9% saline ivi over 1hr
- SE: N&V, hge, stroke. Watch for allergic reactions and anaphylaxis.
- Don't repeat until it is within 4 days of the administration

2. Other thrombolytic agents:

- Alteplase (recombinant tissue plasminogen activator - rtPA)
- Reteplase (modified tPA)
- Tenecteplase (modified tPA)

Contraindications to thrombolysis:

1. Head injury, CVA, or recent TIA
2. Recent GI or GU bleeding, menstruation or bleeding tendency.
3. Severe hypertension (e.g. systolic BP > 200mmHg, diastolic BP > 120mmHg), Aortic dissection or pericarditis.
4. Puncture of non-compressible vessel (e.g. subclavian vein), traumatic CPR, GCS post arrest
5. Major surgery within recent weeks.
6. Pregnancy

Subsequent management

1. Bed rest for 48 hrs, continuous ECG monitoring
2. Daily examination of heart, lung, legs for complications
3. Daily 12-lead ECG, U&E, cardiac enzymes for 2-3 days
4. Prophylaxis against thromboembolism: e.g. Heparin 5000 U/12h SC until fully mobile.
5. If large anterior MI, consider warfarin for 3 months
6. Continue daily low dose aspirin 75-150mg
7. Start oral β -blocker (e.g. Metoprolol 50mg/6 hours for at least 1 year) R/BETALOC 100MG قرص كل ٦ ساعات يوميا لمدة سنة
8. Continue ACEIs in all patients
9. Start a statin R/ZOCOR 20 PO IXI AT NIGHT

10. Manage modifiable risk factors:

- Discourage smoking
- Encourage exercise
- Identify and treat DM and hyperlipidaemia

11. General advice:

- In uncomplicated MI: discharge after 5-7 days
- Work: he may return to work after 2 months.
- Heavy manual labor should be advised to seek a lighter job.
- A diet high in oily fish, fruit, vegetables, fiber, and low in saturated fats should be encouraged.
- Encourage regular daily exercise.
- Sex: intercourse is best avoided for 1 month.
- Travel: avoid air travel for 2 months.

12. Review at 5 weeks post MI to review symptoms: Angina? Dyspnea? Palpitations? If Angina recurs treat conventionally and consider coronary angiography.
13. Review at 3 months: check fasting lipids.

Complications of MI

1. Cardiac arrest, cardiogenic shock.
2. Unstable angina.
3. Bradycardia or heart block.
4. Tachyarrhythmia.
5. Left ventricular failure.
6. Right ventricular failure.
7. Pericarditis.
8. DVT & PE.
9. Systemic embolism.
10. Cardiac tamponade.
11. Mitral regurgitation.
12. Ventricular septal defect.
13. Late malignant ventricular arrhythmias.
14. Dressler's syndrome: recurrent pericarditis, pleural effusions, fever, anemia, & ESR + 1.
15. Left ventricular aneurysm.

References:

1. GP: p 158-161.
2. OHCM: p 104, 106, 108, 782, 783.
3. Oxford-emergencies: p 70, 71, 72, 73, 78, 79.

5. Hypertensive crises D&T

Hypertensive emergency "hypertensive encephalopathy"

- BP على
- كان عندى صاع وترجع كما مرة
- Confused
- Diagnosis of organ damage:
 - Lateralization (brain)
 - Urine incontinence (kidney)
 - Left V. failure or pulmonary oedema (HTN pulmonary oedema)
 - Kidney (ARF): vomiting + abdominal + hiccough + urine output
 - ABG: Metabolic acidosis
 - ↑↑ serum Creatinine

Hypertensive urgency

- أنا مصراع و مش بتعالج من ضغط
- Bp > 180/110
- Look for TOD → لو ملتفتاش
- Search for Ae.
 - Stress → rest
 - Psych → rest + sedation
 - Drugs → stop
 - Pregnancy
 - Food poisoning
 - This called "transient hypertension"
 - لو مفيش سبب → transient ttt then follow up with cardiologist.

Management

- ICU case
- Close BP monitoring
- Lasix
- (nitrates) Tridil infusion
 - * Amp = 50mg in 50ml amp
 - * Start with 5mcg/min
 - * ٥٠ مل على ٥٠ مل عنول ملح بمعدل ٣٣٣/الساعة
- Aim to reduce BP to ~ 110 mmHg diastolic over 4 hours.

قرص كابوتين ٢٥ جيم تحت اللسان وقيس
الضغط بعد ربع ساعة
١٦٠/١٠٠ تحت
عندك ضغط عصبي ولازم تتابع في عيادة
الباطنة
ما نزلش عن ١٦٠/١٠٠
قرص تاني
ما نزلش
قرص ثالث
ما نزلش
Uncontrolled hypertension
↓
Admission

6. Hypotension D&T

1. R/Gutron 1mg drops 7x3
 - Gutron 2.5mg 1x3
 - Gutron 5mg 1x2
- R/Midodrine (2.5) 1x3
 - Midodrine drops 10x3
2. R/Effortil tab 1x3 (etileferine 5mg)
 - Effortil drops 4x3

Postural hypotension

- Def: a drop in SBP > 20 mmHg or DBP > 10 after standing for 3 minutes compared with lying down
- Some causes:
 - Idiopathic orthostatic hypotension
 - Hypovolemia
 - Drugs (e.g. nitrates, diuretics, anti-HTN)

- Autonomic neuropathy (e.g. DM)

7. DVT & Pulmonary Embolism "PE" 54R

DVT

- DVT is most common in patients over 40 yrs of age who undergo major surgery.

Clinical features:

- Leg pain with swelling, warmth, tenderness and dilated superficial veins. However these signs are non-specific.
- May present with PE.
- DVT may be diagnosed by duplex doppler, ascending venography.

Treatment: refer to vascular surgeon

1. Calf vein thrombosis may be treated by compression alone.
2. All other thrombi should be treated with heparin for 4-7 days (40,000 U/24h) checked by bleeding times.
 - ▶ (5000 - 10000 U by bolus then 1000-1500 U/124h IV alone)
 - Or followed by oral anticoagulation for 6-12 weeks. (Warfarin, checked by PT / INR)
3. Thrombolysis by streptokinase.
4. Surgical thrombo-ectomy or embolectomy.
5. You may use LMWH for anticoagulation (e.g. Tinzaparin 175 units /kg od SC).

Risk factors:

- Immobility.
- Recent surgery (particularly orthopedic) pelvic or hip.
- IV drug use.
- Smoking.
- Obesity.
- Pregnancy / pelvic masses.
- Combined OCP.
- Previous DVT / PE.
- Thrombophilia.

Other factors:

- DM, polycythemia, varicose veins

Differential diagnosis:

- Muscular tear: typically acute onset.
- Rupture of Baker's cyst: typically acute onset.

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- Cellulitis or other infection.
- **N.B: Superficial thrombophlebitis.**
- Erythema, tenderness & induration are present along the course of the involved superficial vein, which may feel hard on palpation.
- Can coexist with DVT & can propagate into deep veins.
- Treatment: if no doubt in DVT treat with NSAID.
- Pain usually improves over 1-2 weeks.

Pulmonary Embolism "PE"

Symptoms:

- Acute dyspnea, pleuritic chest pain, haemoptysis and syncope.

Signs:

- Tachypnea.
- Excellent air entry: clear lung.
- Tachycardia.
- Hypotension.
- Cyanosis.
- Classically PE presents 10 days post-op with collapse and sudden breathlessness while straining a stool - but PE may occur at any period of immobility or with predisposing factors.

Investigations:

1. ECG:

- Commonly normal or sinus tachycardia.
- RBB.
- May show RV strain.
- Deep S in lead I.
- Q waves in lead III.
- Inverted T, III
- S.Q.T = ١٣٣

2. ABG:

- Hyperventilation.
- May Pa O₂ ↓
- May Pa CO₂ ↓
- PH often ↑

3. Other investigations:

- CT pulmonary angiography.
- Spiral CT chest with contrast.

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- D-dimer blood test (PE لا تكبر الـ fibrin عند مرضي)
- Echo may show Rt. ventricle dilatation.

Management:

- You must be very fast as most PE deaths occur within 1 hr.
- 1. 100% high flow O₂ by face mask & secure airway (patient may require intubation).

Obtain venous access

3. Monitor respiration, SaO₂, ECG, pulse, BP & urine output.
4. Give heparin 5000 U/kg bolus IV. (amp = 5000U)
5. Start a heparin infusion 150 U/kg/hr (20000 U heparin in 500 ml of 0.9% NaCl)
6. Check APTT after 4hrs (target APTT 70-90) adjust infusion at rate accordingly & re-check APTT.
7. Once APTT is stabilized APTT should be checked 2-24 hourly.
8. Begin warfarin.
9. Heparin + warfarin for > 5 days & until INR > 2 then stop.

Risk factors of PE are the same of DVT.

Differential diagnosis:

- Acute MI.
- Aortic dissection.
- Septic shock.
- Chest infection.
- Haemothorax.
- Pneumothorax.

- ▶ **Massive PE:** is PE resulting in haemodynamic compromise or where > 30% of the pulmonary vasculature is compromised.

References:

1. OHCM: P 802, 803.
2. Oxford - emergency: p 118-121
3. Oxford - surgery: P 118, P119.

8. Acute limb ischemia 54R

Cardinal features (6Ps).

- Pain.
- Parasthesia (later anaesthesia).
- Pallor (later mottled, cyanosed).
- Pulselessness.
- Paralysis (d.t muscle damage: this may be irreversible after 4-6hr).

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- Pershing cold (برودة يمنية)

Causes:

- The commonest cause are : embolism or thrombosis:

Embolic:

- **Cardiac sources** (>80%) AF, post MI, prosthetic valves, atrial myxoma, vegetations, and rheumatic ht. dse.
- Acute embolic events affects the legs much more often than arms (5:1) **artery bifurcations** are affected most commonly.
- **Risk factors:** DM, HTN, smoking, ñ cholesterol.

Examinations:

- A clear demarcation () normal and ischemic suggests an embolic cause of an acutely is chemic limb.
- Check all pulses in both affected and contralateral limb.
- The presence of normal pulses in the contra lateral limb suggests an embolic cause.
- Absent contra-lateral pulses suggests a thrombotic cause.

Investigations:

- ECG, CXR, U&E, CBC, coagulation screen, ABG, urinalysis (checking for myoglobin), X match.
- Angiography if indicated.

Thrombotic:

- May develop acutely at the site of atheromatous dse.
- A previous history of **intermittent claudication dse** vascular impairment is likely.
- The other limb is also likely to have features of chronic vascular insufficiency (muscle wasting, hair loss, ulceration).

Treatment:

1. Analgesia (IV Opioid).
2. Correct hypovolemia & other causes of flow states as necessary.
3. Revascularization is required within 6hrs.
4. If embolic, embolectomy is required.
5. If thrombotic, angiography will define the site and extent of the lesion.
6. Thrombolysis/Reconstructive surgery is then undertaken.

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References: See Oxford emergency P 528.

Respiratory emergencies

9. Acute asthma D&T

- Severe Attack:**
- Unable to complete sentences in 1 breath.
 - RR > 25/min.
 - Pulse > 110/min.
 - Peak expiratory flow < 50% of the expected or best.
- Life threatening attack:**
- Silent chest.
 - Cyanosis.
 - Bradycardia, hypotension, arrhythmia.
 - Exhaustion, confusion or coma.
 - PEF < 30%
- Management:**
- **Start treatment immediately:**
1. Set the patient up and give **high O₂ 100% via non-rebreathing bag**, (target SpO₂ = 94-98 %)
 2. Salbutamol 5mg (Farcolin) + Ipratrobium bromide (Atravent) nebulizer with O₂.
 3. If nebulizer is not available salbutamol inhaler (R/Ventolin inhaler) via a spacer device, 6 puffs (Given at a time and inhaled separately) repeated at intervals of 10-20 min.
 4. Give **Hydrocortisone 100mg IV (R/Solucortef vial)** or prednisolone 30-60mg or both.
 5. **For life threatening asthma:**
 - Add MgSO₄ 1.2 - 2 g IV over 20 min.
 - Give nebulized salbutamol every 15 min.

Acute asthma

High O₂ 100% (by non-rebreathing mask)
Or give 60% O₂ by venturi mask 15 liter)

+
Nebulized (salbutamol + Ipratrobium bromide)
جلسة فاركولين وأتروفت (2 سم ملح + 2 سم فاركولين + أمبول أتروفت)

+
Hydrocortisone 100mg
أمبول سوليكورتيف

(You may Add Mg So₄ IV 1.2-2mg IV over 20 min)
½ أمبول ماغنيسيوم على ١٠٠ سم ملح على مدار ٢٠ دقيقة
خذ بالك من انخفاض الضغط ← قيس الضغط أولاً

If improving

- ↓
After 15 - 30 min
- 40-60 % O₂ (by venturi mask 10-15 liter)
 - Prednisolone 40 - 60 mg / po قرصين ٢٠ أقراص ٣-4
 - Nebulized salbutamol every 4hr. جلسة فاركولين ١/٤ ساعات

طريقة عمل جلسة التبييض:
٢٠ ضربة فاركولين + ٤ سم ملح (الكلي)
١٠ ضربة فاركولين + ٢ سم ملح (الصغير)

If not improving

- ↓
After 15 - 30 min
- Continue 100% O₂
 - Hydrocortisone 100 mg IV or prednisolone 30 mg (6 أقراص هيدروكورتيزون ٢ عي) PO if not already given
 - Salbutamol nebulizer every 15 min جلسات فاركولين مستمرة
 - Ipratrobium bromide 0.5mg every 4-6 hrs. جلسات أتروفت ٤/٦ ساعات
- ↓
Still not improving
- Discuss with your seniors and ICU.

Remember:

- Obtain ABG if SaO₂ < 92% Or if there are other features of threatening asthma.
- Obtain CXR if there is :
 - Suspected pneumomediastinum or pneumothorax.
 - Suspected consolidation.
 - Life threatening asthma.
 - Failure to respond to treatment satisfactory.
 - Requirement for ventilation.
 - Respiratory failure ??

Salbutamol : B2 agonist = bronchodilator
Ipratrobium bromide = bronchodilator
Hydrocortisone and prednisolone = powerful anti-inflammatory and decrease oedema
Aminophylline = bronchodilator
Dexamethasone amp = 2 amp of hydrocortisone
Hydrocortisone amp = 25mg prednisolone

Diabetic emergencies

- Plasma glucose ↑ → osmotic diuresis & Na and water loss (up to 8-10 L)
- **DKA & HONK**
 - DKA mostly occurs in type 1 DM
 - Develops over 1-3 days by gradual decline into dehydration
 - HONK develops often >550 mg/dl - osmolality > 340 mosmol/kg

10. DKA (diabetic ketoacidosis) D&T

Presentation

Common presentations

- Thirst, polydipsia, polyuria
- Dry tongue, hypotension, tachycardia
- **GIT symptoms**
 - Nausea, vomiting & abdominal pain (May be severe & misdiagnosed as acute surgical abdomen) هزجنا
- Hyperventilation with Kussmaul's respiration (rapid deep respiration) & smell of acetone on breath.

DKA is one of the causes of medical acute abdomen

Diagnosis and investigations

1. Check blood glucose
 2. Test urine for glucose and ketones
 3. Do ABG (look for metabolic acidosis)
 4. Do CXR (to search for pneumonia)
 5. ECG (for hyper or hypoglycemia)
- **Diagnosis is established if**
- Glucose > 250 mg/dl
 - Ketosis: in blood or urine
 - Acidosis: PH < 7.35, venous bicarbonate < 15 mmol

Causes of hyperglycemic crises: (4 "1")

- Infection: foci, urinary, respiratory, skin
- Infarction: MI, GIT, Peripheral vasculature
- Insufficient insulin
- Intercurrent illness

Management, (patent airway) if altered conscious level

Your 1st priority is to correct dehydration (fatal than hyperglycemia)

1. Fluid replacement (use saline 0.9 %)

- If plasma Na⁺ is > 150 mmol/L give 0.45 % saline.
- Start
 - Give 1 L over ½ hr
 - Then 1L over the next hr
 - Then 1 L over 2 hr
 - Then 1 L over 4 hr
 - Replace with glucose 5% if RBS < 270 mg/dl

2. Insulin

- Very large doses are not required even if blood glucose was very high
- **Sliding scale**
 - Set up iv insulin sliding scale
 - 50 units of soluble in 50 ml normal saline (each unit = 1ml)
 - Bolus: 0.1 iu/kg
 - Maintenance: 0.1 iu/kg/hr (6-8 ml/hr)
 - ½ rate if RBS < 270mg/dl
 - Double the dose if acetone is persistent or high RBS
 - Withdraw gradually

- Consider CVP in old age, severe illness.
- Change to s.c. insulin once the patient is clinically well, normoglycemic, normoacidotic, eating normally & ketones are $\leq 1+$
- Don't stop iv insulin until 1 hr after the first s.c. dose
- If iv access is difficult give 10 u IM then give 4-6 u/hr
- Shift to glucose 5% when blood glucose is < 270 mg/dl
- Your aim is to eliminate acetone, correct HCO_3^- , decrease RBS by not more than 75mg/hr

Tip
Over-rapid fluid replacement may cause hypercoagulable state so, give prophylactic anticoagulation give 5000u/8hr LMWH s.c
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- Search for the cause of the coma
- NG tube if nauseated/vomiting unconscious & to ↓ risk of gastric dilatation and aspiration.
- K⁺ replacement**
 - If K⁺ is < 3.3 mmol/L hold insulin and give K⁺ 40mmol (4 amp)/hr in CVP
 - If K⁺ is 3.3-5 and urine output is adequate give 20-30 mmol (2-3 amp) in each liter of fluids in order to maintain K⁺ between 4-5 mmol/L
 - If > 5 mmol/L do not give K⁺
- Insert urinary catheter to monitor urine output
- Give HCO_3^- if PH is < 6.9

11. HONK (hyperosmolar non-ketotic coma) D4T

- Diagnosed by RBS > 550 , absent acetone or acidosis, hyperosmolality (treat hypernatremia)
- Rehydrate over 48 hr with 0.9 % saline ivi = $\frac{1}{2}$ rate of DKA
- Start insulin sliding scale → require lower dose of insulin than DKA
- Wait an hour before giving insulin (may not be needed)
- If it is needed, initial dose = 1u/hr
- Full dose heparin.

12. Hypoglycemia D4T

- Plasma glucose < 65 mg/dl

■ Symptoms

- Sweating, anxiety, hunger, drowsiness, confusion, seizures, palpitations.
- Coma,
- Tachycardia, transient hemiplegia (rare)

■ Treatment

- Exclude liver failure
- If can swallow: give 5-15 gm of fast acting CHO, sugar.
- If can't swallow: give 200-300 glucose 10% iv (better than glucose 50% which causes thrombophlebitis)
- You may give instead glucagon 1mg (iv or im or sc)
- But it is of short duration so repeat after 20min. & follow with oral CHO

- Common causes:** insulin overdose, missed meal, liver failure, aspirin poisoning, insulinoma.

Toxicological emergencies

13. Poisoning

(1) General principles

■ Emergency treatment:

- Clean and maintain the airway.
- If breathing appears inadequate ventilate with O₂ using bag and mask or endotracheal tube (not mouth to mouth in poisoned patients).
- Give naloxone for respiratory depression d.t opioids (see later); circulation: check pulse if unconscious and pulseless start CPR.

(2) Diagnosis of poisoning

- The patient or relatives / friends may state what drugs or poisons have been taken, but this information is not always accurate.
- The patient may not know which tablets he / she took; the amount involved is after unclear.
- Check any bottles or packets.
- Record the time of ingestion of the drug or poison.
- Examine the patient all over for signs of poisoning, injection marks or self injury.
- Exclude other diverse processes mimicking poisoning (e.g. head injury, meningitis).

■ Symptoms and signs which may suggest a particular poison:

- Coma with dilated pupils, divergent squint, tachycardia, ↑ Ms tone, ↑ reflexes and extensor planters suggests tricyclic anti-depressant poisoning.
- Coma with hypotension respiratory depression and ↓ Ms tone suggests barbiturates, benzodiazepines with a alcohol or severe tricyclic anti-depressant poisoning.
- Coma with pinpoint pupil and slow respiration is typical of opioid poisoning (Give naloxone).
- Tinnitus, deafness, hyperventilation, sweating, nausea and tachycardia are typical of salicylate poisoning.

- Agitation, tremor, dilated pupils, tachycardia, suggests amphetamines, cocaine, sympathomimetics, tricyclic anti-depressants.

■ Assessment and monitoring:

- Assess and record conscious level (GCS).
- Observe frequently; check blood glucose in all patients with altered mental status, coma or fits.
- Monitor breathing: record respiratory rate.
- Observe pulse oximeter.
- Check ABG if patient is deeply unconscious or breathing abnormally.
- Record and monitor ECG if patient is unconscious, has tachy- or bradycardia or has taken drugs / poisons with risk of arrhythmias.
- Record BP and temperature.

■ Investigation in poisoned patients:

- The most useful investigations are paracetamol and salicylate levels, blood glucose, ABG and U & E.
- Measure paracetamol levels if there is any possibility of paracetamol poisoning (this includes all unconscious patients).
- Record the time of the sample on the bottle and in the notes.

(3) Poisons: supportive care

1. Protect the airway:

- In an unconscious patient use a cuffed ET tube if there is no gag reflex.
- If an oral or nasal airway is used, nurse in the recovery position to minimize risk of aspiration.

2. Monitor breathing & ventilate if necessary.

- Hypoxia and CO₂ retention are common in deep coma.

3. Hypotension:

- May result from relative hypovolemia, arrhythmia & cardio-depressive effect of drugs.
- Treat according to the cause.
- Elevate the foot of the trolley.
- If BP < 90 mmHg give plasma expander such as gelatin 500ml IV.
- Occasionally: give under expert guidance dopamine (2-5 µg/kg/min) or dobutamine.

R/ Dobutamine amp. (12.5 mg/1ml - 20ml)

4. Cardiac arrhythmias:

- Rare in poisoned patients.
- The most likely responsible drugs are tricyclic anti-depressant, digoxin, β -Blockers, verapamil, K^+ bronchodilators.
- **Look for and correct** respiratory depression, metabolic acidosis, and electrolyte abnormalities.
- Anti-arrhythmics are rarely needed, consult poisons expert first.

5. Convulsions:

- **Dangerous** because they cause hypoxia & acidosis & may precipitate cardiac arrest.
- Drugs responsible include: Tricyclic anti-depressant, Mefenamic acid and theophylline.
- Don't treat with anticonvulsants if fits are single and brief.
- But if fits are repeated or prolonged give IV Lorazepam 4mg R/ (Or PR diazepam R/ Stesolid if venous access is difficult)

6. Hypothermia:

- May occur with any drug causing coma.
- Check rectal T° .
- Insulation and passive rewarming are usually adequate **طريقة**.

7. Hyperthermia:

- May occur with amphetamines, cocaine, MAOIs, sympathomimetics and theophylline.
- Convulsions are common.
- Active cooling is needed.
- You may give chlorpromazine R/ Neurazine amp (25mg/amp/1ml)
- Or dantrolene R/ Dantarelix → get expert help

8. Urinary retention:

- Common in coma especially after tricyclic poisoning.

9. Catheterizations if immobility:

- Prolonged immobility (e.g. d.t tricyclic and barbiturates risks pressure areas).
- Treat blisters like minor burns.
- Immobility may lead to renal failure; nerve palsies and compartment syndrome (obtain urgent orthopedic advice).

(4) Reducing absorption of poison:

- Possible measures to remove the poison from the gut and prevent its absorption are:
 - Gastric lavage.
 - Induced emesis.
 - Oral adsorbents (especially activated charcoal).
 - Whole bowel irrigation.

1. Gastric lavage

- **Does not empty the stomach from solids** and may force the gastric contents through the pylorus into the small intestine.
- **May cause hypoxia, aspiration pneumonia and occasionally oesophageal perforation.**
- **Gastric lavage > 1hr after over dose is ineffective.**

► Practice advice on use of gastric lavage:

- Only consider this if the patient **has taken a life threatening amount of poisons within the previous 1hr** or is **deeply unconscious** because of poisoning.
- Only consider performing it if there is a **strong cough reflex** or if the airway is protected by a cuffed ET tube.
- **Don't use lavage for poisoning with corrosives** (risk of perforation) or with petrol / paraffin compounds (risk of pneumonitis).

► Procedure

1. Before starting gastric lavage check that **powerful suction** is immediately available.
2. **Elevate the foot of the trolley** and place the patient in the left lateral position.
3. Give O_2 via nasal cannula & monitor or ECG.
4. Lubricate large disposable stomach tube (36 or 40 FG) and pass it through the mouth into the stomach: confirm position by aspirating gastric contents or blowing air down the tube while listening over the stomach.
5. **Aspirate** gastric contents and keep labeled sample for later analysis if necessary.

6. Perform lavage by pouring **300ml tepid tap water** down the tube and siphoning it back, **ماء فاتر من الحنفية**, to help dislodge tablet debris.

7. While massaging over stomach to help dislodge tablet debris.

8. Continue until the fluid is clear.

9. Consider leaving activated charcoal (50g) in the stomach.

10. While withdrawing the tube, occlude it between the fingers to prevent aspiration of fluid from the tube.

2. **Activated charcoal الفحم النشط**

- **Given within 1hr.**
- Unpleasant to take, often causes vomiting, aspiration into the lungs can result in fatal pneumonia (But this is rare).

- Don't give activated charcoal for substances which don't bind to it, **these include:**

- Iron, Lithium, boric acid, cyanide, ethanol, methanol, organophosphates, petroleum, distillates & strong acids & alkalis.

- Charcoal is most likely to be useful for poisons which are toxic in small quantities (e.g. tricyclic antidepressants and theophylline derivatives).

- Give charcoal (po or via an oro-gastric tube, adults 50g, children 25g).

(5) Antidotes for poisons:

Poison	Antidote	Dose
1. β -Blockers	Glucagon Dobutamine	5-10mg IV (50-150 mg / kg for child) 2.5-10mg/kg/min if the dose as necessary
2. Carbon monoxide	Oxygen	High concentration as possible
3. Cyanide	A. Sodium thio-sulphate	• Adult: 25ml of 50% solution IV over 10min. • Child: 400mg/kg • Adult: 10ml of 3% solution IV over 5-20min. • Child: 0.13-0.33ml of 3% solution / kg. i.e. 4-10 mg/kg
	With sodium nitrite.	• Child: 0.13-0.33ml of 3% solution / kg. i.e. 4-10 mg/kg
	B. Dicobalt edetate	300mg IV over 1 min. These antidotes are dangerous in the absence of cyanide
	High doses of hydroxycobalamin	5-10gm

4. Digoxin	Digoxin antibodies	Expensive and rarely needed.
5. Opioids	Naloxone	• The initial dose for adults: 0.8 mg (2ml) IV, repeated at 2-3 min. Intervals if necessary. • In known or suspected addicts start with smaller doses (0.1 or 0.2mg) to avoid reversing the opioid completely. • Children: 10mg/kg initially repeated as necessary. • If venous access is not available give naloxone IM or intra-nasally.
6. Organophosphates	Atropine	• IV: Adult: 2mg, Child: 0.02 mg/kg repeated every 10-30 mins. until improvement or obvious signs of atropinization. • 30mg/kg IV over 5-10mins, repeated if necessary every 4hrs.
	Pralidoxime Mesylate (P2S)	• Initial dose is 150mg/kg in 200ml dextrose over 15mins. • Then 50mg/kg in 500ml over 4hr. • Then 100mg/kg in 1 L. over 16hrs.
7. Paracetamol	Acetylcysteine	• Orally, cap or tab 2.5g every 4hrs to a total of 10g. • May be ineffective in patients treated with activated charcoal.
	Methionin	• Oral or IV
8. Sulphonylureas	Glucose	• Oral or IV
9. Warfarin	Vit K. clotting factors	
10. Iron salts	Dessferrioxamine	• By IVI. • (15mg/kg/hr. max 80mg/kg in 24hr).
11. Methanol	Ethanol	• Orally • Adult: 125-150ml. • Child: 2m/kg. • Then IVI as 5% solution in dextrose • The initial IV adult dose is 12gm etha-

(6) Opioid poisoning: 54R

- The opioids include: Morphine, buprenorphine (bupren), pethidine, codeine, dihydrocodeine, buprenorphine, nalbuphine, meperidine, diphenoxylate, loperamide, and related drugs.
- They are used as:
 1. Analgesics (sometimes in combination with paracetamol as in co-codamol).
 2. Cough suppressants.
 3. Anti-diarrhoeal agents (loperamide & loperamide).
- Clinical features:
 - Coma, pinpoint pupils, RR.
 - Sometimes: cyanosis, apnoea, convulsions and hypertension.
 - Hypertension may occur in paracetamol poisoning.
 - Non-cardiogenic pulmonary oedema may occur from morphine, heroin or other opioids.
- Respiratory depression:
 - May cause death within 1 hr from an opioid poisoning.
 - However delayed respiratory depression can occur in poisoning with co-codamol (diphenoxylate and atropine) in which the toxicity may occur with slow-release formulations of drugs and also with loperamide orally which has a very long duration of action.
- Treatment:
 1. Open and maintain the airway.
 2. If breathing appears inadequate, ventilate with a bag and mask or CPAP.
 3. Give Naloxone: 0.1 mg/kg (0.1 mg/kg "m, iv, sc" - 0.1 mg/kg)
 - Specific antagonist for opioids and reverses coma and respiratory depression if given in sufficient amount.
 - You may give a further therapeutic trial in suspected opioid poisoning.
 - Record coma level, pupil size and RR & check for any response.
 - Dose:
 - In the initial dose: adults (0.1 mg/kg), 0.1 mg/kg repeated at 2-3 min interval if necessary.
 - In children, an suspected addict: start with smaller doses (0.1 or 0.2 mg/kg) and repeat covering the opioid completely.
 - In children: 0.1 mg/kg initially, repeat as necessary.

54R

- If venous access is not available give naloxone IM or intranasally.

With naloxone:

- Careful observation is essential.
- The dose is adjusted (further naloxone) depending on the response.
- Observation is needed for 6 hours after the last dose of naloxone.
- You should prevent patients at risk of respiratory depression from leaving hospital.
- In opioid addicts, naloxone may precipitate a withdrawal syndrome with: abdominal cramps, nausea and diarrhoea but these usually settle within 24 hr. Ventricular tachyarrhythmias occur occasionally.
- Consider activated charcoal if a sustained release opioid formulation has been taken.

(7) Salicylate poisoning: 54R

- Standard aspirin tablets contain 300mg acetylsalicylic acid.
- Ingestion of 150mg/kg BW usually produces mild toxicity.
- 500 mg/kg will cause severe and possibly fatal poisoning.
- Poisoning can also result from absorption of salicylate from the skin.
- Clinical features:
 - Commonly vomiting, tinnitus, deafness, sweating, vasodilation, hyperventilation and dehydration.
 - Hypokalaemia may occur.
 - Severe poisoning may produce confusion, coma and convulsions.
 - Children are particularly prone to hyperpyrexia and hypoglycaemia.
- Management:
 1. Gastric lavage if an adult has ingested > 4.5 gm (15 Standard tablets) in the previous 1 hr.
 2. Give 50g activated charcoal (25 in child) after ingestion of 4.5 gm (15 gm in children).
 3. Measure plasma salicylate concentration (and repeat after a few hrs if further symptoms occur).
 4. Check U&E, glucose & ABG if there are CNS features or signs of severe poisoning.
 5. A second dose of activated charcoal may be useful if the salicylate increases suggesting delayed gastric emptying or if enteric coated tablets have been taken.

54R

Mild poisoning:

Children with plasma salicylate < 350 mg/L (2.5 mmol/L) and adults with < 450 mg/L (3.3 mmol/L) usually need only oral fluids.

Moderate poisoning:

Children with salicylate > 350 mg/L (2.5 mmol/L) and adults with 450 mg/L need IV fluids to correct dehydration and ↑ elimination of salicylate.

- Sodium bicarbonate alkalinizes the urine (which is much more effective than massive diuresis in ↑ salicylate excretion).
- Urine pH should > 7.5 (ideally 8.0-8.5).
- Repeat salicylate level, check U & E and add K⁺ as necessary.

Severe poisoning:

- CNS features, acidosis or salicylate > 700 mg/L (5.0L mmol) are associated with significant mortality.
- Get expert advice & urgent referral for haemodialysis.
- Correct acidosis and give repeated charcoal via NGT.
- Give glucose IV.
- Don't use forced diuresis, which is ineffective & may cause pulmonary oedema.

(8) Paracetamol poisoning: 54R

- Paracetamol (acetaminophen in USA) may cause severe liver damage if 12g (24 tablets) or > 150mg/kg are taken.
- Renal failure is usually associated with liver failure.

Clinical features:

- Nausea, vomiting and abdominal discomfort are common within a few hrs.
- After 12 hrs: liver damage, vomiting continues.
- From 24 hrs: pain and tenderness over the liver.
- 2-4 days: Jaundice.
- Sometimes from hypoglycaemia (at 1-3 days).
- Loin pain, haematuria and proteinuria suggest incipient renal failure.
- Hepatic encephalopathy (onset at 3-5 days).
- Hepatic failure causes bleeding from coagulation abnormalities and hyperventilation from metabolic acidosis.

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٢٤ قرص

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- In fatal cases: cerebral oedema, septicemia & DIC are common.
- However many patients survive severe liver damage and recover completely.
- LFTs are normal until < 18 hrs after the overdose.
- The most sensitive liver damage is often a prolonged INR (from 24 hrs after overdose).

Paracetamol antidotes:

1. Acetylcysteine:

- Given by IVI in 5% dextrose.
- Initial dose is 150 mg/kg BW in 200ml dextrose over 15 min. Then 50mg/kg in 500ml over 4hr. Then 100mg/kg 1 L over 16 hrs.

SE:

- Erythema, urticaria around the infusion site on more generalized rashes, itching, nausea, angioedema, bronchospasm and rarely hypotension or hypertension.
- SE usually occur in the first hour & are dose related.
- If SE occurred stop the infusion & give an antihistamine.
- When symptoms have settled, resume Acetylcysteine at the lowest infusion rate.

2. Methionine (not available in Egypt)

Management:

1. Treat as any case of poisoning.
2. Activated charcoal if presented within 1hr after ingestion.
3. Start IV Acetylcysteine or oral Methionine (if no charcoal).

(9) Organophosphate poisoning 54R

- Widely used as insecticides.
- Absorbed through the skin, bronchial mucosa & gut.
- Inhibit cholinesterases, causing accumulation of acetylcholine at nerve endings and neuromuscular junctions.

Clinical features:

Early features of toxicity include:

- Anxiety, restlessness, insomnia, tiredness, headache, vomiting, abdominal colic, diarrhea, sweating, hyper-salivation and miosis.
- Muscle weakness and fasciculation may develop.
- In severe poisoning:
 - Widespread paralysis with respiratory failure, pulmonary oedema, profuse bronchial secretions, bronchospasm, convulsions and coma.

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- Hyperglycemia and cardiac arrhythmias may occur.
- Occasionally, delayed effects of poisoning develop 1-4 days after acute poisoning with:
 - Cranial nerve palsies, muscle weakness and respiratory failure which resolve after 2-3 weeks.
 - A peripheral neuropathy sometimes occurs after 2 weeks, usually involving the legs.

Management:

- Wear protective clothes and avoid getting contaminated yourself.
- Give supportive treatment as needed.
- Give supportive treatment and remove bronchial secretions.
- Clear the airway and positive pressure ventilation if necessary.
- Give O₂ and positive absorption by removing soiled clothes and washing the skin or by gastric lavage after ingestions in the previous 1hr.
- Prevent further absorption by removing soiled clothes and washing the skin or by gastric lavage after ingestions in the previous 1hr.
- Take blood for cholinesterase.
- If there is profuse bronchial secretions and bronchospasm.
- Give: **Atropine N (adult: 2mg, child 0.02mg/kg)**, repeated every 10-30 mins until there is improvement or obvious signs of atropinization (dry mouth, tachycardia, dilated pupils).
- Very large quantities may be needed.
- Give diazepam to ↓ agitation and control convulsions R/Neuril amp.

Sources of poisoning articles:

1. Oxford emergency: p 178-190, 204.

١٠. كيفية التعامل مع السموم

١. حدد نوع السم وطريقة تعاطيه .

• نوع السم :

- عن طريق الأقارب ، الأصدقاء ، والمريض نفسه .
- أي علة موجودة أو زجاجة موجودة

• طريقة تعاطيه :

- عن طريق الخطأ (حادث) .
- إلتحار أو إلقاء نفس .
- جنائي (محاولة قتل) .
- سجل زمن وتوقيت تعاطي السم .
- الحص من أجل علامات التسمم وأماكن الحقن .

٤. تقيم المريض .

- رقم الغبوية ودرجاتها .
- عد التنفس .
- فحص جلولوز الدم .
- فحص أكسجين الدم (pulse oximeter) .
- غازات الدم (ABG) لو كان في غيبوبة أو يتنفس بشكل غير طبيعي .
- عمل رسم قلب (لو كان في غيبوبة- تسارع أو تباطؤ في خدمات القلب- أدوية تؤثر على القلب) .
- سجل الضغط والحرارة .

٥. الإسعافات الأولية :

- نظف ممرات الهواء وتأكد أنها مفتوحة وتسمح بمرور الهواء .
- لو كان التنفس ضعيفاً ، عمل إنعاش رئوي بالأكسجين والشفاع أو bag أو حتى أنبوبة داخل القصبة الهوائية (ETT) .
- أعط Naloxone ل Respiratory depression بسبب الـ Opioids .
- الحصى البنية : لو كان فاقداً للوعي أو لا يوجد نبض أبداً فوراً الإنعاش القلبي الرئوي (CPR) .

ملحوظة :

في حالة عدم تعرفك على السم : يمكنك إعطاء Naloxone + Atropine

٦. علاج المشاكل الأخرى : (Supportive treatment) :

- تشنجات : أعط diazepam .
- انخفاض في درجة الحرارة : غط المريض (كثي) .
- انخفاض الضغط : أعط plasma expander مثل الجيلاتين .
- ارتفاع في درجة الحرارة : أعط chlorpromazine أو dantrolene .
- احتباس بولي : قسطرة بولية .

٧. كيف تقلل من امتصاص السم :

- غسيل معدة : في خلال ساعة من إلتلاء السم .
- استخدام الفحم النشط : ٥٠ جم في خلال ساعة .
- أعط مضادات السموم : كما سبق .

٨. التحاليل :

- نسبة البازاستامول .
- نسبة الساليسيلات (الأسبرين) .
- سكر الدم .
- رسم قلب ECG .
- غازات دم ABG .
- سجل توقيت العينة على الزجاجاة .

Environmental emergencies

14. Electrical injuries 54K

- An electric shock can cause cardiac and respiratory arrest
- The heart often restarts spontaneously, but respiratory arrest may be prolonged causing fatal hypoxia.
- Thermal injury from electric current produces burns & ms spasm (may result in dislocations or fractures)

• Contact burns :

- If electricity has passed through the patient → 2 or more entry or exit wounds which are full thickness burns with white or charred edges.
- Tissue damage is more extensive than visible burns, especially with high voltage injuries.
- Deeper layers of skeletal muscle may be involved.
- MS damage can cause myoglobinuria and renal failure.
- Myonecrosis and oedema of ms may produce a compartment syndrome.

• Neurological effects :

- Coma, fits, headaches, transient paralysis, peripheral neuropathy, and mood disturbances.

• Ophthalmic injuries :

- Late glaucoma & cataracts may develop.

• Lightning : صواعق :

- Causes a direct current (DC) shock at a very high voltage (up to 100 million volts), but short duration (0.1-1 milliseconds).
- The sudden vaporization of sweat and rain water caused by lightning may explode clothes and shoes off the victim and rupture eardrums.
- Lightning burns are superficial, often with a characteristic feathered or fern-like appearance.
- The limbs are often cold and mottled d.t arterial spasm, which usually resolves over a few hours.
- Deep ms damage and myoglobinuria are rare.
- Coma may result from direct brain injury, head injury due to a fall, or cardiac arrest.
- CPR, if required: may be successful even if required for prolonged periods.
- Survivors may be confused and amnesic for several days & may have fits and temporary paralysis.

• Cataracts are common.

• Management: (of electrical injuries)

1. At the scene, **turn off the current before any one approaches.**
2. Remember that high voltage electricity can arc through the air or pass through the ground.
3. Check the airway, breathing and circulation. Electrical burns of the mouth and throat may cause airway obstruction.
4. Perform CPR if necessary but minimize movement of the spine in case of trauma.
5. Examine thoroughly for head, chest abdominal & skeletal injuries.
6. Examine all over for skin entry/exit wounds & check pulses.
7. Check ECG: there may be arrhythmias (e.g. AF), conduction sensation defects, ST elevation and T wave changes.
8. Check CBC, U&E and creatinine kinase (except in minor low voltage burns).
9. Test the urine for blood. If the stick test is +ve for blood but there are no RBC on microscopy, treat for myoglobinuria to prevent renal failure: obtain specialist advice and maintain a high urine output, consider using Mannitol + isotonic sodium bicarbonate.
10. IV fluids are often required d.t fluid loss into muscles which lead to hypovolemia.
11. After high voltage injuries, widespread fasciotomies may be needed, with excision or amputation of non-viable tissues and inspection and further debridement after 48 hours.

Source:

1. Oxford hand book of emergency medicine: p264, 265.

15. Heat stroke 54T

- Suspect in collapse during or after exercise: core T° is > 41° C.
- There is multi-organ damage especially to the CNS. Outcome depends upon the height and duration of ↑ T°. Mortality is ~10%.
 1. CNS: Oedema + petechial hges causes force generalized damage.
 2. MS injury release enzymes, myoglobin urate, K⁺, PO₄
 3. Liver: damaged cells releases enzymes, jaundice commonly develops after 24hrs.
 4. Kidneys: ARF from hypovolemia. Ms breakdown products, acidosis, DIC.
 5. Blood: DIC, thrombocytopenia, leucocytosis.

6. **Metabolic:** ↑ or ↓ K⁺, metabolic acidosis, respiratory alkalosis, hypoglycemia.

■ **Features:**

1. Sweating may be present
2. **CNS:** confusion, delirium, fitting, coma, tremor, ms rigidity, pupils may be dilated.
3. **CVS:** tachycardia, hypotension, arrhythmias.
4. **Coagulopathy:** purpura, conjunctival hges, melena, haematuria.

■ **Treatment:**

1. **Rapid therapy is vital; don't wait for the result of investigations.**
2. **Remove all clothing.** Remove the patient from hot environments.
3. **Secure the airway** (Intubation and pressure ventilation is needed) give high flow on.
4. **Cooling techniques**
 - Don't give antipyretics such as aspirin & paracetamol.
 - **Aim for cooling rate of at least 0.1 C°/min.**
 - When core Temp. < 39 C° stop active cooling as hypothermia may develop.
 - **Spray the naked patient with tepid water and blow air over the body with fans.**
 - **Ice packs** can be applied to the axillae, groins, neck and scalp (but avoid prolonged contact).
 - **Consider cold gastric or peritoneal lavage.**
5. **IV fluids:** give **50ml of 50% dextrose IV** if glucose is (50mg/dl).
 - Severe hypovolemia is uncommon.
 - If hypotension persists despite ↓ T^o, give IV 0.9% saline (1-1.5 L over 1-2 hrs).
6. **Insert a urinary catheter** if myoglobinuria is present, aim for ↑ urine output and consider giving IV bicarbonate ± Mannitol.
7. If fits: give IV Lorazepam but beware of resp. depression.

Source:

1. Oxford -emergency: p 263

16. Snake bite D&T

- Snake venoms are complex mixtures of proteins and small polypeptides with enzymatic activity.
- They are classified into:
 - Neurotoxins.
 - Haematotoxins (Haemorrhagic or Coagulopathic).
 - Cardiotoxins.

■ **C/P & Assessment:**

Key questions:

1. Where on the body were bitten?
 2. How long ago?
 3. By what sort of snake? (if you know sorts of snakes)
- Friends & relatives will frequently bring the snake with the patient but take care on handling it, it may be only injured not dead.

■ **Management:**

1. **First aid measures**

- Reassure the patient.
- Immobilize the bitten area to minimize venom spread.
- Identify the snake.
- **Apply a firm bandage** to occlude lymphatic drainage.
- **Don't incise at the bite site and don't suck out the venom by the mouth.**
- You should insert a large bore IV cannula on an unaffected limb.

2. **Monitor:**

- BP, renal, CV, neurological status as hypotension, anaphylactic shock, renal failure, and respiratory distress may all develop rapidly.
- All patients with suspected envenoming should be observed for 12-24 hrs as the initial manifestations may be delayed.

3. **Treat pain & vomiting symptomatically.**

- Aspirin should not be used for analgesia → May ↑ bleeding.
- **If response to antivenom is poor, large quantities of fresh frozen plasma, cryoprecipitate and platelets**

4. **Antivenom:**

- Ask about any hx of allergy.

- Perform intradermal sensitivity test by injecting 0.02ml of saline diluted antiserum at a site distant from the bite.
- The injection site is then observed for at least 10 min for the development of redness, hives, purities or other adverse effects.
- The shorter the duration () injection & reaction, the greater the degree of sensitivity.
- A syringe of 0.5 ml of 1:1000 adrenaline must be available when ever antivenin is administered.
- The entire initial dose should be given as soon as possible and preferably within 4 hours of the bite however antivenom given up to 24hrs has been shown to reverse coagulation deficits.
- Give corticosteroids (Dexa or Solucortef) to treat serum sickness.
- Bites by large snakes may need relatively high antivenom doses.
- Additional antivenom (e.g. 1- 5 vials) should be administered if swelling, systemic features ↑ in severity or new manifestations such as ↓ BP.
- If pulses are lost in a bitten limb, compartment syndrome should be suspected and surgical assessment requested.

جرعة لصل: حتى ٥ أمبولات
متوسطة: حتى ١٠ أمبولات
عظيمة: ١٥-٢٠ أمبول
في محلول ملح ٠.٩ % ٥٠٠ مل في
الوريد بالتنقيط على مدار ساعة.

17. Scorpion stings D&T

- Scorpion venom usually causes only minor local reaction in humans but in Mexico, Tunisia, Algeria, Morocco and Libya scorpion stings are a serious health hazard.

Scorpions do not attack humans and try to escape when disturbed.

- Stings occur after a person accidentally steps on or involuntarily presses the scorpion. (When it is trapped inside shoes or clothes).
- **Clothes and shoes need to be inspected closely and shaken** and sitting or sleeping places checked when camping in rural districts where scorpions are common (Southern USA, Mexico, North Africa, parts of India and South Africa).

■ **C/O & Management:**

- Different species produce different symptoms.

- (1) Delayed onset of burning, stinging & itching of skin oedema can compromise circulation.

- Remove spicules.
- Wash affected area with soap & water.
- Paracetamol for pain.
- Systemic steroids R/Dexa amp or local R/Betaderm if systemic is not available.

(2) Immediate localized pain:

- Myocardial toxicity.
- Haemolysis.
- Necrosis of skin.
- Vascular spam.

Effective antivenom

- (3) Severe burning pain at site of sting (may delayed) blanching, wheal formation erythema, oedema, vesicles, possible necrosis.

↓
R/Panadol 1x4
R/Avil amp. (systemic antihistaminic)
R/Dexa or Solucortef
R/Cefotax 1g.

- (4) Diarrhea, Abd. Pain, N & V, Burning sensation of skin on contact with cold water.

- Pruritis, parasthesia.
- Myalgia, arthralgia.
- Progressive flaccid paralysis.

↓
IV fluids → rehydration
Respiratory & cardiac support.

(5) General:

- Local pain & parasthesia are best treated with local compresses & oral analgesics.
- Patient with significant envenoming should be hospitalized for at least 12hrs & observed for cardiovascular & neurological sequelae.
- Anaphylaxis to antivenin is rare.
- Serum sickness is common after antivenin give syst. Steroid + Anti histaminic.

Reference: Davidson's: p 221-225

18. BURNS D&T

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Types:

- Thermal
- Chemical
- Electrical
- Radiation

History:

- Was there an explosion (risk of blast injury)?
- Was the fire in an enclosed space? (CO poisoning, smoke).
- Was the burning material? (Burning, inhalation plastics release cyanide).
- How long was the patient exposed to fire and smoke?
- Did the patient fall or jump to escape? (Look for other injuries).
- What is the patient's tetanus status?

Initial assessment:

1. **Airway burns:** suggested by hoarseness, stridor, dysphagia, facial and mouth burns.

2. Spinal injury.

3. **Breathing problems:** contracting full thickness circumferential burns (Eschar) of the chest wall may restrict chest movement.

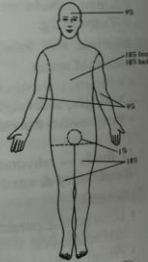
4. **Circulatory problems:** (Hypovolemic shock) is a feature of severe burns.

Estimate the percentage of the burn

Assess depth of burn:

A. Superficial (first, second degree):

- First: erythema.
- Second: painful erythema with blistering deep partial thickness burns which do not blanch on pressure.

Source of this figure: Tintinalli's emergency medicine 8th edition

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B. Full thickness:

- Burns may be white, brown or black, look leathery, do not blister and have no sensation.

Management of burns:

1. Stop the burning process.

2. **Cool the wound under running water** (8-25 °C degree) for 20 minute (for 30 minute in chemical burns).

3. 2 IV lines (in major burns).

- One line: to send blood for CBC, U&E, clotting profile.

- One line: IV fluids

- **Start with isotonic crystalloid** (e.g. 0.9% saline) at 2-4ml/kg bodyweight/%body surface area burned over the first 24hours following injury.

- **Give half of this volume in the first 8 hours.**

4. Insert a urinary catheter to monitor fluid replacement (>50ml/hour in adults to 1-2ml/kg/hour in children is satisfactory).

5. Monitor ECG, BP, RR, pulse oximeter, ABG.

6. The burn itself:

- Superficial burn: heal without scarring 2weeks if not infected.

- For small burns: small non adherent dressing 2/w wound inspection.

- Wash the wound with normal saline or chlorohexidine.

- Debride large blisters.

- Elevate the limb to decrease pain and swelling.

- Dress the hand: cover the hands with soft paraffin inside a polyethylene bag or glove sealed at wrist, change after 24hours.

- غطى اليد بشاش فازلين وحطها في كيس واقفه

- Topical sulfadiazine is used on deep burns to decrease infection.

- R/Dermazine cream

Chemical burns:

1. Hydrofluoric acid:

- Irrigate with water.

- Give Ca²⁺ Gluconate topical gel 10%

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- Call a plastic surgeon.
- Check serum Ca, Mg and U&A.
- Recording an ECG and place on a cardiac monitor.
- Treat hypoglycemia.

2. Phosphorus:

- Irrigate.
- Add copper sulphate which will make particles black (early to identify).
- Elemental Na, K, Mg and Li:
- Do not irrigate.
- Cover in oil, remove pieces then wash with water.

3. Alkali:

- Need longer irrigation (>1hour).

Refer the following

- Airway burns.
- Significant full thickness burns, especially over joints.
- Burns >10%.
- Significant burns of special areas (hands, face, perineum, and feet).

References

Oxford emergency page 388,390,392,394,395.
Oxford (OEM) page 830.

تواعد التعامل مع الحروق

1. وقف الحريق
2. ضم الحرق تحت الحفنة لمدة ٢٠ دقيقة
3. ركب ٢ كانيولا (دم ومحاليل كريستالويد)
4. ركب مضخة بول
5. الحرق حمه
- شاش فازلين
- شيل الحقت الميتة والزائدة
- ارفع الساق أو اليد عشان نقل الورم
- غطى الحرق بشاش بارافين وحطها في كيس واقفه
- Dermazine cream

TRAUMA

16

19. major trauma: treatment principles

- Patients who present e serious injuries enquire immediate assessment and resuscitation.

1. Airway control

- (Suction, chin lift, oropharyngeal airway) to open their way.
- O₂ by face mask.
- Avoid tilting the head or moving the neck there is a chance of neck injury.

2. O₂

- Provide O₂ (high flow) to all patients.
- Patients who are apnoeic or hypoventilating require assistance by bag and mask ventilation prior to tracheal intubation and pressure ventilation.

3. Cervical spine control

- This is the first priority in any patient who presents with possible spine injury (e.g. neck pain, loss of consciousness).
- Provide immediate in-line manual immobilization by placing one hand on each side of the patients head and holding it.
- Steady (without traction) and in line with the remainder of the spine.
- Whilst maintaining manual immobilization ask an assistant to apply an appropriately sized hard cervical collar.
- Adhesive tape and sand bags may be applied.

4. IV fluids

- Insert 2 large cannulae in the forearm or antecubital fossae veins.
- If initial attempts fail consider in the femoral vein.
- If this fails → central line.
- Give 1L of normal saline 0.9% in adults (20 ml/kg in children).

5. Analgesia

- Give morphine IV (diluted in saline to 1mg / ml) titrated according to response + antiemetic (e.g. cyclizine 50 mg IV).

6. Antibiotics

- Give prophylactic Abs for compound fractures and penetrating wounds of the head, chest, or abdomen.
- Give broad spectrum Ab e.g. Cefuroxime (Zinnat) Cefotaxime (Cefotax) Ceftriaxone.

7. Advanced trauma life support (ATLS)

References:
1. Oxford-emergency P318, 319

Neurological emergencies

20. Coma D4R

Causes of coma:

Metabolic:

Drugs, poisoning e.g. CO, alcohol, tricyclics.
Hypo/Hyperglycemia
Hypoxia
Septicemia
Hypothermia
Hypothermia
Hepatic / uraemic encephalopathy
Myxoedema, Addisonian crisis.

Neurological:

Trauma
Infection: **meningitis, encephalitis** e.g. herpes simplex: → give IV acyclovir if the slightest suspicion, malaria.
Tumour: cerebral / meningeal Tm.
Hge: stroke.
Hypertensive encephalopathy.

10. Are there any **foci of infection** (Abscesses, bites, middle ear infection?).

11. **Any feature of meningitis**: neck stiffness, rash, focal neurology?

12. Note the absence of signs: e.g. pin point pupils in a known heroin addict.

Quick history: From family, ambulance, others.

- Abet or gradual onset?
- How found?
- Recent complaints: headache, fever, vertigo, depressions?
- Recent medical: HX sinusitis, otitis, neuro surgery, ENT procedure?
- Past medical HX: DM, Asthma, ↑ BP, cancer, Epilepsy, psychiatric exposure.
- Any travel?

► In all undiagnosed coma patients or in those with focal neurological signs → a CT scan is very helpful & a lumbar puncture may be needed for meningitis or subarachnoid hge.

21. Glasgow coma scale (GCS)

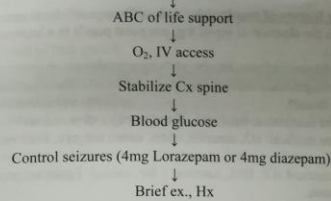
Best motor response: 6 grades

- 6 Carrying out request (Obeying command): the patient does simple things you ask.
- 5 Localizing response to pain: put pressure on the patient's finger nail bed with a pencil 0 then try supra-orbital and sternal pressure: purposeful movements towards changing painful stimuli: is a "localizing" response.
- 4 Withdraws to pain: pulls limbs away from painful stimulus.
- 3 Flexor response to pain: pressure on the mid bed causes abnormal flexion of limbs.
- 2 Extensor posturing to pain: the stimulus causes limb extensions (affection, internal rotation of shoulder, pronation of forearm).
- 1 No response to pain.

Best verbal response: 5 grades

- 5 Oriented: the patient knows who he is, where he is and why, the year, season and month.
- 4 Confused conversation: the patient responds to questions in a conversational manner but there is some disorientation and confusion.

Management of coma



Investigation

- ABC, CBC, U&E, LFT, ESR, CRP.
- Ethanol, toxic screen, drug level.
- Bl. Culture, urine culture, consider malaria.
- CXR.

Immediate management: see above

1. Assess. Airway, breathing & circulation intubation if GCS < 8
2. Protect the cervical spine.
3. Check bl. glucose in all patients. Give 50 ml 50% dextrose IV immediately if presumed hypoglycemia.
4. IV naloxone for opiate intoxication.

Examination:

1. **Vital signs** are vital.
2. **Signs of trauma**: Haematoma, lacerations, bruising "Panda eyes", fracture of skull, CSF / blood in nose or ears.
3. **Stigmata of other illnesses**: liver dse, Alcoholism, DM, myxoedema.
4. **Skin**: for needle marks, cyanosis, pallor, rashes, poor turgor.
5. **Smell of breath**: (alcohol, hepatic fetor, ketosis, uremia).
6. **Meningism** → But don't move neck unless CX spine is cleaned.
7. **Pupils**: size, reactivity, gaze.
8. Heart/lung exam for murmurs, ribs, wheezes, consolidations, collapse.
9. Abdomen / Rectal for organomegaly, Ascitis, bruising, peritonism, melen.

3. Inappropriate speech: random speech but no conversational exchange.

2. Incomprehensible speech: moaning but no speech.

1. None.

Record level of best speech:

Eye opening: 4 grades

- 4 Spontaneous eye opening.
- 3 Eye opening in response to speech: Any speech or shout into necessarily request to open eyes.
- 2 Eye opening in response to pain: pain to limbs as above.
- 1 No eye opening.

(Results)

An overall score is made by the summation in the 3 areas assessed.

Example:

No response + no verbalization + no eye opening = 3

- Severe injury = GCS ≤ 8
- Moderate injury = GCS 9-12
- Minor injury = GCS 13-15

Sources: OHCM: p 774, 775, 776.

First aid & BLS

22. Basic life support

CPR: Adult (older than 8 years)

1. Check for unresponsiveness:

- Gently shake or tap the victim.
- Shout "Are you OK?" twice.
- To elicit person a painful stimulus can be applied such as pinching the earlobe and pressing over the eyelids.

2. If No response, call the emergency.

3. Position the patient supine on hard flat surface.

- If the victim is lying face down, turns or roll the victim as a unit supporting the head and neck.
- Loosen clothing & expose chest.

4. Open the airway by the head tilt chin lift method or if spinal injury is suspected, use the jaw thrust method (only if trained).

5. Look, listen and feel for breathing for up to 10 sec.

- Look for the chest to rise and fall.
- Listen for air escaping during exhalation.
- Feel for the air flow on your cheek.
- If breathing place in recovery position.

6. If breathing → place in recovery position.

7. If not breathing → check carotid pulse.

8. If signs of circulation are present but person is still not breathing, give rescue breaths at the rate of one every 5 seconds. (Rate = 10 - 12 / min).

9. If pulse and signs of circulation, are not present start CPR

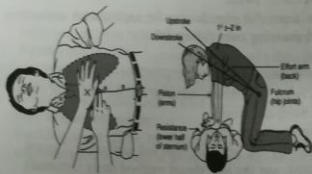
■ CPR

- Push hard. Push fast.
- Rate of compressions 100/min.
- Depth of compression. 1½-2 inch (4-5cm)
- If circulation resumes but breathing does not or is inadequate, continue rescue breathing.
- If breathing and circulation resume, place the person in recovery position and monitor until help arrive.

■ How to locate landmark for external chest compression:

1. Run your index and middle fingers up the lower fingers up the lower margin of the rib cage and locate the sternal notch with your middle finger. The index finger is place next to the middle finger on the lower end of the sternum.
2. The heel of other hand (the one nearest the victim's head) is placed on the lower half of the sternum and the other hand is placed on the top of the hand on the sternum so that the hands are parallel.

ضع باطن يدك على نهاية sternum
وضع يدك الأخرى فوقها.



3. Your fingers may be either extended or interlaced but must be kept off the chest.

• صوابك يمكن تكون مفردة أو مشبكه بس لازم تكون بعيدة عن الصدر.

4. Lock your elbows into positions, the arms are straightened and shoulders directly over the victim's sternum. Keep the heel of your hand lightly in contact with the chest during the relaxation phase of chest compression to maintain correct hand position.

• إيدي نتي كوعان.

• خلي كفك فوق ال sternum

• في ال relaxation خلي إيدك لأمسه صدر العيان عشان متعثرش مكانها.

► How to place the victim in the recovery position:

1. Place the arm nearest to you above the victim's head on the dorsal side.
2. Bring the victim's hand across his chest and with your other hand, grasp the far leg just above the knee and pull it up, keeping the foot on the ground.
3. Keeping his hands pressed against his chest pull on the leg to roll the victim towards you on his side.
4. When the patient is in the recovery position make sure that the airway is opened and maintained by keeping the hand under the chin. Monitor and record vital signs until help arrives.



Recovery position

CPR

Age	Adult (Over 8)	Child 1 year to puberty	Infant 1 month-1y
Ratio	30 : 2	30 : 2	30 : 2
Chest compression	1½ - 2 inches	½ to ½ the depth of the chest	½ to ½ the depth of the chest
Ventilation	1 second	1 second	1 second
Volume	600-800ml	500ml	Puff
Hand	2 hands	1 or 2 hands	2 fingers
Position	Lower half sternum	Nipple line	Below nipple line
Rate	Approx. 100/min	Approx. 100/min	Approx. 100/min

23. Foreign body airway obstruction (Adult) or child (1 years or old) سق

■ Signs and symptoms:

1. Grappling at the throat with one or both hands "universal choking sign".
2. Wheezing, gagging, ineffective coughing.
3. Cyanosis: bluish skin coloration.

■ Management:

1. Determine that airway is obstructed. Ask "Are you choking?" Can you speak?
2. Let the person: know you are going to help.
3. Stand behind the victim. Try to release his/her hands clutching the neck and wrap your arms around the waist. Head should be bent forward and slightly downward.

4. Apply Heimlich maneuver

- Make a fist. Place thumb side of the fist in the middle of the abdomen just above the navel (umbilicus) & well below the xiphoid process.



Universal choking sign



- Grasp fist with the other hand.
- Press fist abruptly into abdomen using an upward, inward thrust aiming to increase the intra-thoracic pressure and expel the F.B.

5. Continue thrust until objects is dislodged or person loses consciousness.

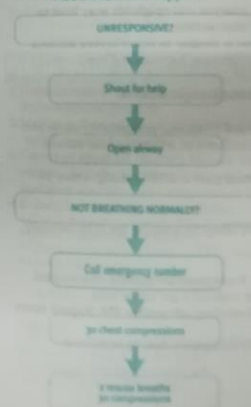
6. If person loses consciousness, treat as unconscious adult or child with an obstructed airway.

■ If victim is pregnant or markedly obese.

- Stand behind the victim with your arms encircling the victim's chest.
- Place the side of your fist in the middle of the sternum (taking care to avoid the xiphoid process).
- Grasp using backward thrusts.



Adult Basic Life Support



24. Anaphylactic shock D&T

- Common causes:
 - Drugs and vaccines (e.g. Antibiotics, streptokinase, aspirin, NSAIDs IV contrast agents).
 - Bee/wasp stings.
 - Foods (nuts shellfish, straw berries, what).
 - Latex.

- Clinical features:
 - The speed of onset & severity vary with the nature & amount of the stimulus but the onset is usually in min / hrs.
 - A prodromal aura or feeling of impending death may be present.
 - Patient on β -blockers or with a hx of IHD or asthma may have especially severe features.
 - Usually 2 or more systems are involved.

1. Respiratory:

- Swelling of lips, tongue, pharynx and epiglottis may lead to complete upper airway obstruction.
- Lower airway involvement is similar to acute severe asthma (Dyspnea, wheeze, chest tightness, hypoxia and hypercapnia).

2. Skin:

- Pruritis, erythema, urticaria & angio-oedema.

3. Cardiovascular:

- Peripheral vasodilatation and $\downarrow$ vascular permeability cause plasma leakage from the circulation with $\downarrow$ intravascular volume, hypotension and shock.
- Arrhythmias, ischemic chest pain and ECG changes may be present.

Treatment:

- Discontinue the drug: remove stings by scraping the sting carefully away from skin.
- Give 100% O₂.
- Open and maintain airway. Emergency intubation or a surgical airway and ventilation may be required δ get senior help.
 - Give 0.5mg (0.5ml of 1:1000 solution) adrenaline IM. Repeat every 5 min if needed.
- Give $\frac{1}{2}$ of the dose to patients taking tricyclics, MAOIs, or β -blockers.

- If life threatening start CPR/ALS as necessary & consider slow IV adrenaline 1:10,000 or 1:100,000 solution (By experienced clinicians only who can obtain immediate IV access "no delay").
- If no response to adrenaline give glucagon 1-2mg IM/IV every 5 min.
- Give salbutamol 5mg nebulized δ O₂.
- Nebulized Ipratrobium bromide 500 μ g may be added.
- Give IV fluids if hypotension does not respond rapidly to adrenaline (e.g. 500ml over $\frac{1}{2}$ hr. up to 2litres).
- Anti-histaminic H₁ blockers (e.g. chlorphenamine 10-20mg slow iv + H₂ blockers (e.g. Ranitidine 50mg IV).
- Give hydrocortisone 100-500 mg slow IV.
- Admit/observe after initial treatment: prolonged reactions and biphasic responses may occur: observe for at least 4-6 hrs after all symptoms have settled.
- Report anaphylactic reactions in hospital records and patient's medical notes.

References:

- Oxford handbook of emergency medicine. P44, 45, 46.
- OHCMP 780, 781.

Put in your mind

- Haematemesis is vomiting of blood usually d.t bleeding proximal to the duodeno-jejunal junction.
- Melena is the passage of altered blood (dark purple, pitch black or "tarry" usually d.t bleeding below the gastro-oesophageal junction).
- Causes of upper GI bleeding include: peptic ulceration, oesophageal varices, oesophageal ulceration, oesophageal trauma, gastric cancer, coagulation disorders, anti-coagulants or NSAIDs & other drugs.
- Principles of emergency medicine.
 - Check Airway $\rightarrow$ patent, FB, O₂ ventilation, endotracheal tube.
 - Check respiration $\rightarrow$ Do CPR.
 - Check circulation, pulses $\rightarrow$ CPR, drugs $\uparrow$ BP
 - Check vital signs.
 - Bp: Hyper, Hypo $\rightarrow$ treat.
 - Pulse.
 - Temp: Hypo: warm, Hyper: dewarm.
 - Shock?
 - Bleeding, Hypovolemia? IV fluids, blood transfusion.
 - Coma? $\rightarrow$ Search for the cause.
 - Vomiting, diarrhea, severe pain?
 - Wound? Assess & manage.

- The most common cause of apparent lower GI bleeding is upper GI hge.
- Urinary retention means not emptying the bladder (obstruction or δ detrusor power), "painful inability to pass urine".
- New onset flank back pain or the elderly may represent a leaking aortic aneurysm.

- Renal colic is "a several intermittent stabbing pain radiating from loin to going (to iliac fossa, tip of the penis or labia).

- For renal colic **don't give the following:**

- Avil amp - Ca²⁺ - IV fluids.

- C/P of severe Asthma:

- Unable to complete sentences in 1 breath.
- RR $>$ 25/min.
- Pulse $>$ 110/min.
- Peak expiratory flow $<$ 50% of the expected or best.

- C/P of life threatening asthma:

- Silent chest.
- Cyanosis.
- Bradycardia, hypotension, arrhythmia.
- Exhaustion, confusion or coma.
- PEF

- Acute pancreatitis is after d.t gallstones & alcohol.

- C/P of acute pancreatitis: severe nausea & vomiting.

- Emergency treatment in case of poisoning:

- Clean and maintain the airway.
- If breathing appears in adequate vent. late with O₂ using bag and mask or ETT (not mouth to mouth in poisoned patients).
- Give naloxone for respiratory depression d.t opioids.
- Start CPR.

15. Some common antidotes:

- Gastric lavage.
- Activated charcoal.

16. Some common antidotes:

- | | |
|-------------------|--|
| β -Blockers | : Glucagon, dobutamine. |
| CO | : O ₂ |
| Cyanide | : Sodium thiosulfate + Sodium nitrite. |
| | : Dicobalt edentate. |
| Opioids | : Naloxone. |
| Organophosphates | : Atropine. |
| Paracetamol | : Acetylcysteine. |
| | : Methionine. |
| Sulfamylurea | : Glucose. |
| Warfarin | : Vit K, clotting factors. |
| Methanol | : Ethanol. |

- Opioid poisoning:
 - Coma, PPP, $\downarrow$ RR (respiratory depression which may cause death within 1 hr).

- Salicylate poisoning:

- Commonly vomiting, tinnitus, deafness, sweating, vasodilatation, hyperventilation and dehydration.

- Gastric lavage should be done within 1 hr.

- Remember in Organophosphorous poisoning.

- N & V, diarrhea, Anxiety, insomnia, abd. pain.

- In severe poisoning e Organophosphorous:

- Wide spread paralysis e respiratory failure, pulmonary oedema, hyperglycemia may occur.

- Peptic ulcer:

- Sudden localized epigastric pain spreads to the remainder of abdomen.
- The pain is worse on coughing or moving and may radiate to the shoulder tip.

- Acute cholecystitis:

- RT. hypochondrial pain radiating to the Rt. side of the back + vomiting.

- In intestinal obstruction order erect and supine abdominal XR δ disturbed loops bowel (with multiple fluid levels visible on an erect abdominal view).

- C/P of acute mesenteric view:

- Severe sudden onset, diffuse abdominal pain.
- The pain may radiate to the back.
- There is often associated history of vascular disease elsewhere (e.g. intermittent claudication).

- In acute limb ischemia revascularization is required within 6 hrs.

- Main lines of treatment of anaphylaxis:

- 100% O₂.
- Maintain airway.
- 0.5mg (0.5% of 1: 1000 solution) adrenaline IM & repeat every 5 min.
- Salbutamol 5mg nebulized with O₂.
- IV fluids if hypotension.
- H-1 Blocker.
- Hydrocortisone 100-500 mg slowly IV (R/Solucortef).

- Steps of CPR:

- Open the airway.
- Not breathing check pulse
- If signs of circulation are present but person is still not breathing continue to give rescue breaths at the rate of one every 5 seconds (Rate = 10 = 12/min).
- If pulse and signs of circulation are not present start CPR
- Compress at a rate of 100 / min.
- If breathing and circulation resumes, place the person in recovery position and monitor until help arrives.

29. GCS:

- 8: severe injury.
- 9-12: moderate injury.
- 13-15: minor injury.

16 Test yourself

1. 1st aid for suspected MI
2. Criteria of acute appendicitis pain?
3. Def. of Haematemesis?
4. Dose of streptokinase in ttt of MI?
5. Acute appendicitis is often due to and
6. Treat a case of hypotension?
7. 1st aid with acute abdomen (31)?
8. The classic picture of ruptured AAA?
9. True or false: in acute abdomen Abs are useful even if the diagnosis is not clear
10. 1st drug of choice in ttt of hypertensive urgency?
11. The major problem that can complicate or co-exist with DVT is
12. Possible ECG of PE?
13. Criteria of acute pancreatitis pain?
14. Surgical causes of acute abdomen?
15. Clinical features of acute limb ischaemia?
16. Pain in the loin or back arises from retroperitoneal structure such as
17. Criteria of acute Cholecystitis pain?
18. In brief mention immediate ttt of renal colic?
19. Def of Melen?
20. Acute abdominal pain in the epigastrium may be due to
21. Criteria of severe asthmatic attack?
22. Suggest: severe generalized abdominal pain radiating to shoulders and back
23. In a case of acute abdomen serum amylase more the max is very highly suggestive of acute pancreatitis (3x - 4x - 5x)
24. True or false: jBs may mask signs of shock
25. Steps of ttt of acute asthma?
26. Medical causes of acute abdomen?
27. 3 criteria of MVO

28. The most common surgical emergency?
29. Common 3 causes of upper GI bleeding?
30. True or false: amylase may be normal in acute pancreatitis
31. Main lines of mild upper GI bleeding management
32. Symptoms of hypoglycemia?
33. is the chief cause of medical acute abdomen
34. Activated charcoal is given within hr
35. Gynecological causes of acute abdomen?
36. Reducing absorption of poison is done by?
37. Drugs may be associated with GI bleeding?
38. Criteria of anginal pain?
39. In a case of abdominal pain
If vomiting is pain: often non-surgical cause
If vomiting is pain: often surgical (after before)
40. Give antidote of the following
CO
Cyanide
jBs
Opioids
Organophosphates
paracetamol
41. Common causes of hypoglycemia?
42. True or false: new onset flank/back pain in the elderly may represent a leaking aortic aneurysm
43. 5 categories of drugs used in ttt of angina?
44. If you found severe abdominal pain out of proportion to the clinical signs suggest until proven otherwise
45. Treatment of anaphylactic shock?
46. Criteria of renal colic?
47. General principles for management of poisoning?

Answers

1. Aspirin 300mg
Dinitra 5mg SL
Morphine or strong analgesic
Primperan
2. Peri-umbilical pain
Followed by vomiting
Moves to right iliac fossa
3. Vomiting of blood usually due to bleeding proximal to the duodeno-jejunal junction.
4. 1.5 million units in 100ml 0.9% saline ivi over 1 hr
5. Gall stones - alcohol
6. R/Midodrine 2.5 1x3
Or R/Effortil 1. 1x3 or drops 4x3
7. Spasmolytic
Analgesic
Ryle tube
8. Central abdominal and lower back pain in patient with known aneurysm
9. False
10. Capoten
11. PE
12. ST, QII, TIII
RBBB
13. Severe epigastric pain radiating to the center of the back
With severe nausea and vomiting
14.
 - Perforated viscus
 - Intestinal obstruction
 - Mesenteric vascular occlusion (MVO)
 - Rupture ectopic pregnancy
 - Pancreatitis
15. Pain, paraesthesia, pallor, pulselessness, paralysis
16. Pancreas, renal tract, abdominal aorta
17. Rt hypochondrial pain radiating to the Rt side of the back + vomiting
18. R/Olifen amp im or ketolac
R/Primperan amp iv or im
R/Buscopan amp iv or im
19. The passage of altered blood (dark purple, pitch black "tarry") usually due to bleeding below the gastro-oesophageal junction.
20. Pancreatitis
Gastritis
Peptic colic
- MI
21. Unable to complete sentences in 1 breath
RR >25/min
Pulse > 110/min.
22. Acute peritonitis
23. 3x
24. True
25. O₂
Nebulizer (farcilin ± atrovent)
Solacortef vial
MgSO₄
26. Inferior wall MI. (Epigastric pain)
 - DKA
 - FMF
 - Renal failure
27. Diffuse pain
Shock
Absent bowel sounds
28. Acute appendicitis
29. Peptic ulceration
Oesophageal varices
Oesophageal ulceration
30. True
31. Check airway, breathing
O₂
NGT
2 large cannulae
Slow iv fluid
Omeprazole
Take blood for investigations
32. Sweating, anxiety, confusion or coma, hunger, tachycardia
33. IBS
34. 1
35. Ectopic pregnancy
PID
Rupture/torsion of ovarian cysts
Endometriosis
36. Gastric lavage
Induced emesis
Activated charcoal (adsorbant)
Whole bowel irrigation
37. NSAIDs, salicylates, corticosteroids, anti-coagulants
38. * Retrosternal
* Crushing, heaviness or like a tight band
* Relieved by rest and nitrates (within 2 minutes)
* Not affected by respiration or movement

39. Before - after

40. O₂

Sodium thiosulfate
Glucagon, dobutamine
Naloxone

Atropine
Acetylcysteine

41. Insulin overdose, missed meal, liver failure, aspirin, poisoning, insulinoma

42. True

43. Aspirin, Atenolol (β B), nitrates, CCBs, statin

44. Ischemic bowel

45.

- Discontinue the drug
- 100% O₂
- Airway (may be intubation)
- 0.5 mg (0.5 ml of 1/1000 solution) adrenaline im and repeat every 5min. if needed.

- Start CPR/ALS if needed
- If no response to adrenaline give glucagon to 1-2mg im/iv every 5min.
- Nebulized atrovent
- Fluids if hypotension

- Avil + zantac
- Solucortef slowly iv
- Report the anaphylactic reaction in the patient records

46. Severe intermittent stabbing pain radiating from loin to groin

47. Airway

O₂

Pulse

Naloxone (for opioids)

تم فصل الطوارئ والله تعالى الفضل والمنة